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Macroeconomic Adjustment and Growth

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Financial Sector Policy in Thailand

A Macroeconomic Perspective

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and
Patrick Honohan

How well Thailand's financial sector can provide the investible funds demanded by the country's current boom depends partly on its ability to mobilize savings — through official policy on credit allocation and through the movement of capital internationally.

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This paper — a product of the Macroeconomic Adjustment and Growth and Financial Policy Divisions, Country Economics Department — is part of a larger effort in PRE to analyze links between macroeconomic policy and financial sector performance. This work is related to a research project on the macroeconomic consequences of public sector deficits. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Raquel Luz, room N11-057, extension 34303 (68 pages with figures and tables).

Thailand's recent boom has been accomplished in an economy open to external forces. Despite the fiscal correction achieved in 1986-89, expansion of domestic demand made itself felt in a widening of the current account deficit. This deficit partly reflects the need for a surge of capital spending to develop export prospects and to provide the necessary infrastructure — but care must be taken that investment not get too far out of line with the economy's long-term savings potential.

How well the country's financial sector can provide the investment funds the boom demands depends partly on its ability to mobilize savings, on official policy about credit allocation, and on the degree to which capital is free to flow internationally.

Resource mobilization in Thailand is impressive: its liquidity ratio is surpassed in only a handful of developing countries.

There are some selective credit measures — mainly favoring agriculture, agribusiness, and commodity exports — but these are either relatively small in scope or tend to be only partly enforced, so they distort the allocation of credit only slightly. A number of quasi-fiscal requirements add about 1.5 percentage points to gross banking spreads.

The interest-rate ceilings on bank loans have probably lowered the cost for some nonprime borrowers but may have increased rates for others and excluded some high-risk borrowers.

Capital movements are restricted, and there is evidence that domestic monetary conditions have a short-run effect on wholesale interest rates. But wholesale interest rates tend to converge to foreign levels in the medium term, suggesting that monetary policy has only a short-term effect.

Easterly and Honohan make recommendations for developing monetary policy instruments and for recasting and reducing quasi-fiscal and credit allocation impositions on the financial system.

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We are grateful for the research assistance of Maria Cristina Almero and Piyabha Kongsamut, for comments from and/or useful discussion with Bela Balassa, Zamir Hasan, Amara Sriphayak, Andrew Steer, James Henson, Danny Leipziger, Anoop Singh, Kevin Young, Ismail Della, Chris Barltrop, Jerry Caprio, Robert Effros, Marcelo Giugale, Marilaos Vittas and economists in the Bank of Thailand, the Thai Government, the Thai Development Research Institute, and Thammasat University.

Thailand has become one of the developing world's outstanding success stories over the past decade. We look in this paper at what role the management of financial sector policy has or has not contributed to that success. We give recommendations based on this analysis as to how the good economic performance can be preserved. We look first in Part I at how the financial sector fits into the overall macroeconomic environment. In Part II, we analyze the central issue of interest rate determination. The recurrent theme in both parts is that the degree of integration of the Thai financial market with the rest of the world is the key factor in determining how financial sector policy affects economic performance.

I. THE MACROECONOMIC CONTEXT

In this part we look first at the performance of the real economy in recent years. We then examine the question of the openness of the economy to capital flows. This allows us to evaluate the relative effectiveness of fiscal versus monetary policies. The following section considers the macroeconomic impact of the means of financing domestic investment. This is placed in context of the overall rapid growth of the financial system in the following section. The policies of Bank of Thailand to influence credit allocation are then examined. Part I concludes with an examination of the overall impact of macro policies on the Thai economy given the financial sector characteristics set out previously.

A. Overview of the real economy

Thailand has had one of the most rapidly growing economies in the world for the last three years. After growth of 8.4 percent in 1987 and 11 percent in 1988 (Table 1), growth of around 10-11 percent is expected for

1989. The financial sector has been in the forefront of this growth, as value added in financial services shot up by 33.6 percent in 1987 and 16.3 percent in 1988. This is partly due to the rapid growth of sectors such as construction -- 13.7 percent growth in 1988 -- and real estate transactions -- 26.8 percent growth in 1988.

This reflects the massive real estate boom that the economy has experienced, especially in construction of office and residential condominiums. Although no hard figures are available, informal reports speak of a doubling of real estate values in prime areas over the past year. The surging Thai stock market also indicates that the valuation of physical capital has risen sharply. The Securities Exchange of Thailand (SET) index rose by 84 percent in the first nine months of 1989, after increasing by 36 percent in 1988. The implied capital gain on the stock market alone for the first nine months of 1989 amounts to about 15 percent of GDP. Such a significant gain seems likely to be contributing to the boom in private investment, increasing both the expected rate of return to investment and liquidity of corporations and private households.

The private investment boom has been leading GDP growth on the demand side. Private investment growth of 18 percent is expected in 1989, after last year's surge of 23.4 percent. Private consumption has been lagging behind overall growth of the economy, while both government investment and consumption have been growing more slowly or even falling, as explained in more detail below.

The expansion has taken place with little acceleration of inflation. Even recent signs of acceleration seem to be reflecting mainly a relative price shift. The average inflation for 1989 is expected to be 5.6 percent, up from 3.8 percent in 1988 (Table 2). Items that are rapidly growing in price

are either those whose international price has risen rapidly -- rice and other food commodities -- or those that are nontraded and in booming sectors -- construction materials. As standard analysis would predict, the demand expansion is putting some upward pressure on the ratio of nontraded to traded goods prices.

The main force of the demand expansion has been felt in the widening external deficit, as shown in Table 3. Although private saving has risen, it has lagged behind the extraordinary rise of private investment, so that a current account deficit (investment-saving) of 3 percent of GDP appeared in 1988, with a like figure expected for 1989. The public resource balance has played the desired countercyclical role, with a resource surplus achieved in 1988 for the first time since 1974.

Although external deficits were significant in 1988-89, this was following a successful external adjustment where previously much higher external deficits were eliminated. A rough calculation suggests that a current account deficit of no more than 2.3% of GDP would be required in 1990 to keep the ratio of net external liabilities to GDP stable, assuming that growth remains at 10% in 1990. In the medium term, a current account deficit of 1.6% of GDP would be required to keep the debt ratio stable at the long-run growth rate of 7%. As Table 3 shows, the reduction in the public resource deficit has been the most important force to restore external balance to the economy. The public surplus currently in place is desirable to restrain private demand and keep the current account deficit within bounds.

Table 4 shows the components underlying the behavior of public deficits. After several years of high deficits in 1981-85, a major fiscal adjustment was achieved in 1986-89. This was achieved both through decreases in current and capital expenditure, and through a large increase in revenue.

The relative decline of public investment was partly unintentional, reflecting project delays and shortages of construction materials and rapidly rising materials prices wreaked havoc on budget execution procedures. This problem is now being addressed by introducing an adjustment for construction costs into project execution procedure.

The revenue increase was also partially endogenous to the expansion, reflecting the rapid rise in the taxes most sensitive to economic activity--tariffs on imports (24 percent increase in FY88/89), corporate income tax receipts (32 percent increase), and business tax receipts (35 percent increase). This suggests that the achievement of the fiscal surplus not merely be seen as the completion of the adjustment undertaken since the early 1980's, but also as reflecting beneficial feedback from the economic expansion itself.

Although the fiscal adjustment has been very impressive, it has not been sufficient to keep up with the rapid rise in private investment, so that the external resource gap has been large in 1988-89. This leads us to the issue of the adequacy of domestic financing for investment over the long term.

B. Openness of the financial system

In analyzing the financing of public and private investment by the financial system, it is important to analyze the degree of openness of the Thai economy to external capital flows. Theory predicts that an economy perfectly open to capital flows will display several important characteristics. The domestic interest rate will not be affected by private sector excess demand or fiscal deficits but will be determined solely by international interest rates (plus expected devaluation of the domestic currency). Changes in the fiscal deficit or autonomous private demand will

pass through into the current account deficit of the balance of payments rather than increasing domestic interest rates.

Public borrowing in the domestic financial market will not crowd out private investment; instead, there will be offsetting private borrowing in external markets. Similarly, credit expansion by the central bank will be entirely offset by a loss of foreign exchange reserves, other things equal. Credit expansion by the entire financial system will be offset by a decline in net foreign assets to the extent that it exceeds the expansion in money demand. In such an economy, the level and composition of the financing of the public deficit has no effect on private investment.[1]

With perfect capital mobility, fiscal policy is effective in restraining aggregate demand to improve the current account.[2] Monetary policy is ineffective either to affect the current account deficit or private investment, but does have a strong effect on the level of foreign exchange reserves.

The capital market in Thailand is not <u>formally</u> open. Residents are not permitted to buy foreign exchange except for documented purposes such as imports, travel, etc. Foreign currency accounts are not permitted in the banking system except for narrowly circumscribed purposes. Commercial banks

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1. One caveat to this result must be mentioned. If the private sector anticipates that excessive public sector deficits will lead to a balance of payments crisis, devaluation, and/or the rationing of external credits sometime in the future, then deficits will affect expectations and thus private investment.

2. There is the theoretical possibility that private saving could offset changes in fiscal policy ("Ricardian equivalence"), but most empirical tests have shown that this does not hold in either industrial or developing countries.

can move capital both in and out but cannot have a net foreign exchange position greater than 20 percent of their capital (or B5 billion, whichever is smaller). While banks can use the forward market to cover their positions, the market is limited to commercial banks, importers, and exporters, and only for short-term operations.

While this degree of capital controls makes it unlikely that the Thai capital market is perfectly open, the economy exhibits many of the characteristics of a high degree of openness.[3] Figure 1 shows the behavior of the public and current account deficits. There is a statistically significant correlation, indicating a high degree of pass-through of fiscal into external deficits. A simple regression of the current account deficit on the fiscal deficit shows an R^2 of .21 and a coefficient of .50 on the fiscal deficit (significant at the 5% level). While more analysis is needed to resolve potential problems of simultaneity and omitted variables, this result may be interpreted as suggestive of the high degree of openness of the economy.[4]

While these results suggest that the current account deficit is affected strongly by fiscal deficits, this does not mean that a fiscal deficit is the only possible cause of external deficits. Excess private demand can also lead to current account deficits, as is the case for 1988-89.

Figure 2 shows the behavior of Bank of Thailand domestic credit and net foreign assets over 1971-89. Again a negative correlation is displayed, which is suggestive of a high degree of offset of reserve changes to domestic

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3. The Thai economy is also relatively open to trade flows, as shown by the large increase in the share of exports and imports in GDP over the last 2 decades. An analysis of trade policy across countries in the 1987 WDR classified Thailand as "outward-oriented."

4. The regression results are in the appendix.

credit expansion. This would suggest that monetary policy is relatively ineffective in managing domestic demand over the medium run. Intuitively, attempts by Bank of Thailand to tighten monetary policy lead to an incipient increase in interest rates. This triggers a capital inflow -- and accumulation of reserves at BOT -- until the monetary tightness is mostly undone and interest rates are roughly at par with foreign ones.[5] The convergence of domestic and foreign interest rates is taken up below.

C. Financing of domestic investment

With a high degree of openness, the relevant concept for analyzing the role of external financing is the ratio of total external borrowing to total investment. Table 5 shows that the ratio was fairly modest -- less than 10 percent -- over the 1970's, which helps to explain how Thailand avoided the debt crisis by which many other middle-income countries were beset. Over 1979-85 the ratio increased significantly, but then decreased again in 1986-88 as the fiscal adjustment improved the external situation. We also see a large increase in the role of direct foreign investment in total external financing in 1988, a tendency which continued strongly in 1989. The external debt ratio peaked in 1985 at 34.2 percent of GDP, then declined to 26.5 percent by 1988. A long-run tendency toward excessive dependence of investment on external financing is not apparent in these numbers.

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5. A simple regression of reserve changes on BOT domestic credit expansion shows an R^2 of .92 and a coefficient of -1.039, with a t-statistic of 14.1, as shown in the Appendix. Again, there are potential problems of simultaneity that could arise out of policy reactions to reserve changes. For example, the Bank of Thailand could be reacting to any change by a tightening or loosening of credit. This possibility should be examined further in future research.

Table 5 also shows the financing breakdown of public and private investment. As argued earlier, this does not have much macroeconomic significance in a highly open economy, but it is still of interest on institutional grounds. Public investment consistently has a higher ratio of external financing than private investment, going as high as 87 percent in 1985. The role of external financing in private investment never exceeds 20 percent.

The achievement of a surplus by the government allowed a reduction in its external financing needs. Since there continued to be a small positive amount of borrowing, however, the surplus led to a sharp reduction in domestic government debt. The domestic debt reduced most sharply was that owed to the banking system, as was shown in Table 4.

The sharp reduction in public borrowing from the banking system allowed a rapid expansion of private credit, even though total domestic credit stayed roughly constant as a ratio to GDP (Table 6). The ratio of public domestic credit to GDP peaked at 17 percent in 1984, then declined to 9.5 percent in 1988. Private credit reached 57.3 percent of GDP in 1988 from 48 percent in 1984. Over 60 percent of private investment was financed by domestic credit during 1987-88. Since total credit stayed roughly constant while there was an increase in demand for financial assets, as reflected in a high ratio of M2 to GDP, there was an increase in net foreign assets of the financial system.

D. Development and growth of the financial system

Thailand has an exceptionally deep financial system. As Table 6 shows, the ratio of broad money to GDP in 1989 was 65.4 percent, a figure

exceeded only by a handful of developing countries.[6] Figure 4 shows that much of this monetization has taken place relatively recently. As recently as 1981, the ratio of money to GDP was only 38.5 percent. The rapid monetization took place because an increasingly large share of private saving (net of depreciation) was channeled into accumulation of financial assets. Table 6 shows how in 1984-88 80 percent of saving was in the form of broad money. This contrasts to an average of 40 percent in the 1970's and 60 percent in 1980-83. This increased "financialization" of saving seems to be taking place both in response to high real interest rates (see table 7) and increased confidence in the economy as a result of the successful macroeconomic adjustment. The rapid monetization itself must have contributed to the adjustment (as well as preventing a more serious crisis earlier in the 80's) by lessening the adverse impact of any given fiscal deficit on international reserves. The high monetization ratio in 1987-89 also suggests that the financial sector is keeping up with the booming economy.

The monetization of the economy has led to a complementary rise in credit. As Table 8 shows, this increase in financial intermediation has been well distributed across sectors. All of the sectors identified except for utilities show an appreciable increase in the ratio of total credit outstanding to value added over 1981-88. However, this also implies that the unequal distribution of credit across sectors persisted in the 1980's. In

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6. The 1989 World Development Report lists only 8 low and middle income countries (out of 73) with a higher ratio of broad money to GDP in 1987--China, Yemen PDR, Yemen Arab Republic, Egypt, Jordan, Malaysia, Portugal, and Greece. Even some of these countries have price controls with goods rationing, which artificially inflates the money to GDP ratio (the "money overhang"). Thailand's monetization ratio even compares favorably with that of high income countries -- their median ratio of broad money to GDP in 1987 was 64.8 percent.

particular, the agricultural sector received far less credit relative to value added than the other sectors. This in part must reflect structural or technical characteristics of the sector -- a relatively lower level of fixed assets that need to be financed, for example.

Concern also has been expressed about possible excessive lending to real estate and construction, particularly in light of the recent land boom. We cannot evaluate this based on the aggregate lending figures alone -- it would also require detailed knowledge of the adequacy of banks' credit supervision and monitoring procedures. However, the aggregate figures by themselves do not show much cause for concern. The ratio of credit to value added in 1988 was only moderately higher than in 1984 after an intervening drop.

As in every country, the financial sector in Thailand is affected considerably by the cyclical fluctuations in the economy. Almost a quarter of commercial bank loans go to real estate, construction, or financial services companies. As figure 5 shows, real output in these sectors is considerably more volatile than overall output (as in most countries). The financial sector is thus inherently more vulnerable to domestic output fluctuations than many other sectors. The typical pattern of financial crises is that portfolio quality declines during rapid expansions of credit during booms. The poor quality of some loans is exposed by the subsequent bust, leading to financial distress in the weakest banks and finance companies. This pattern only partially holds true in Thailand. The first crisis in the Thai financial sector, in 1979, was indeed associated with a sharp downturn in output.[7]

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7. The history of crises in the Thai financial sector in the last decade is admirably described in T. Sundaravej and P. Trairatvorakul, Experiences of Financial Distress in Thailand, background paper for the 1989 World Development Report, PPR WPS 283, World Bank, December 1989.

However, the second and more serious financial crisis (in 1983-84) came during a period of expansion, although the subsequent downturn in 1985-86 complicated the treatment of the crisis. This suggests that financial distress is not mechanically linked to cyclical fluctuations, although prudence concerning portfolio quality during times of rapid economic expansion would be well justified.

E. Bank of Thailand credit allocation policies

The concern that the agricultural sector may be discriminated against by the financial system led the Bank of Thailand to initiate policies to direct credit towards this sector. Bank of Thailand currently requires commercial banks to lend 20 percent of their deposits to the agricultural sector. Of this a maximum of 6 percent of deposits can be lent to agribusiness concerns. Any shortfall of the lending from the target must be deposited by banks at the Bank for Agriculture and Agricultural Cooperatives (BAAC) at below-market interest rates. As shown in table 9, the target for lending has been revised several times, most recently in 1987.

However, as Table 9 shows, the policies of Bank of Thailand do not appear to have been strictly enforced, although they do have some effect on commercial bank behavior. Commercial banks have a significant shortfall in their lending to the agricultural sector. While they do place some deposits at BAAC -- unwillingly, since the interest rates are below the market rate --these have not been enough to cover the shortfall since 1985. These deposits have even declined slightly as a ratio to deposits, although the shortfall has increased. However, the banks did appear to increase their lending to agriculture after the target was raised, even if insufficiently.

Banks have exceeded the target for agribusiness lending every year, but this does not compensate for the shortfall on lending to agricultural producers under BOT regulations. The aggregate target thus has a shortfall every year even if the BAAC deposits are counted as loans to the agricultural sector.

The agricultural lending requirement does not appear to have a strong economic justification. As suggested earlier, the lower level of credit utilization by the agricultural sector probably reflects technical and institutional characteristics of production in that sector, and not necessarily a market failure on the part of lenders. To the extent that it is enforced, the requirement to lend to agriculture may result in credit being directed away from uses where it has the highest rate of return. Thus, the lax enforcement of this measure may be a blessing in disguise. However, having the regulation on the books imposes administrative costs and some uncertainties in portfolio management, suggesting that it would be preferable to substitute a formal easing of the requirement for the present lack of enforcement.

However, in considering possible changes in this requirement other regulations that affect the agricultural sector should also be evaluated. In particular, the ceiling on lending rates may itself be causing discrimination against the agricultural sector. Since agricultural lending is typically more risky than other types of credit, a ceiling on rates may lead banks to eschew these loans, even though the average loan rate is below the ceiling. A move toward greater efficiency of credit allocation across sectors would require liberalization of both the agricultural lending requirement and the ceiling on loan rates.

The other major effort of Bank of Thailand to influence credit allocation is development lending for specific purposes, such as promotion of exports, small-scale industry, and agricultural production. Bank of Thailand will rediscount bills for these purposes presented to it by commercial banks. The rate of rediscount is 3 to 5 percent for different purposes. Table 10 shows the evolution of development lending since 1982 in relation to total commercial bank credit by sector. We see that only export credits are significant relative to total sectoral credit. Total development credits have not been more than 9 percent of total commercial bank lending since 1982.

In 1989 development credits have decreased sharply, as shown in table 10. This reflects the policy announced by Bank of Thailand at the beginning of the year that it will henceforth only rediscount 50 percent of the face value of loans to preferential borrowers, instead of 80 percent as previously. The impact of this measure was felt most strongly in the export sector, where the share of development credits in the total was reduced from 49 percent to 20 percent.

The reduction in development credits seems to be desirable, since development lending is not necessary for activities that have a high enough rate of return to be economically viable and not desirable for unviable activities. Development loans have a fiscal cost that is financed implicitly through taxes on other users of financial services. Although these distortions do not appear to have been large, their reduction is a wise policy move during a time of good performance in the sectors being favored.

The Bank of Thailand has a more informal policy instrument in the "moral suasion" that it exercises to restrain excessive credit increases to particular sectors. This has been used recently to try to dissuade banks from excessive lending for real estate speculation. It is difficult to evaluate

the success of this policy since we cannot know what bank lending would have been in the absence of "moral suasion". The rapid growth of credits to real estate businesses (48 percent in 1988) could suggest the effectiveness of the policy has been limited. However, as we saw earlier, the ratio of credit to value added in this sector is only moderately increased from previous years, so it is possible BOT played a role.

There are two other policy instruments that are agreed upon jointly by Bank of Thailand and the Ministry of Finance: the withholding tax on foreign borrowing and the tax on interest earned by depositors. Although they do not directly influence sectoral credit allocation, they affect portfolio decisions by the financial system and the private sector and thus credit behavior in general.

The tax of 15 percent on interest income is part of the overall income tax, and thus serves the purpose of preventing large disparities in tax rates between different types of income. The government announced in August 1989 the exemption of the tax on depositor accounts of less than 200,000 baht as a measure to promote saving of "small savers". While the goal is laudable, the means is not. It seems likely that all deposit interest income earners will now be able to evade taxation through splitting of accounts, a potential loss to the treasury of 7 billion baht.[8] While the public sector is currently in surplus, it is not desirable to reduce taxation at a time when passive public sector surpluses serve to restrain aggregate demand. Attempting to enforce the measure will entail needless manpower costs for banks and the government -- from this point of view it would even be preferable to exempt all interest income. Even if the measure did not lead to

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8.The estimated revenue from income tax on deposit income in FY 1988-89.

tax evasion, the creation of unequal rates for different types of income is a violation of sound and efficient tax policy.[9]

The 10 percent withholding tax on foreign borrowing is a measure to reduce the disparity between the tax rates on interest income received by foreigners and by nationals. Given the high degree of capital mobility, changes in the tax are one of the few means available for the authorities to affect the domestic interest rate. An exemption was granted for foreign borrowing of greater than 3 years maturity during May-August of this year (recently extended). The avowed purpose -- to promote long-term finance for the current account -- again was more worthy than the means chosen. The temporary change in policy led to revenue loss with probably little or no permanent change in private behavior, since the private sector may have rescheduled previously planned borrowings to fall within the period of exemption. Private capital inflows grew spectacularly during 1989, but it seems likely they would have done as well in the long run in the absence of an exemption. The loss in revenue again was inadvisable on stabilization grounds, since the overheating of the economy called for the only effective countercyclical instrument -- passive fiscal surpluses. Also, if the private sector does interpret the exemption as a more lasting measure, it will worsen the overheating of the economy by lowering the effective domestic interest rate and increasing investment further.

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9. Another issue, which is presently not very significant in Thailand because of the low inflation, is the taxation of nominal interest income when only real interest income should be taxed.

F. Financial policy and macro management

Aside from some relatively minor departures from efficient tax and credit allocation policy, Thailand's financial policies appear sound from a macroeconomic perspective. The extraordinary progress of monetization of the economy has contributed to the achievement of buoyant private investment and rapid growth. The rapid growth in demand for financial assets also helped cushion the impact of the high fiscal and external deficits of the early 80's as well as facilitate the subsequent successful adjustment. The high degree of financial openness of the economy meant that fiscal policy was an effective tool to achieve adjustment. It has been used well to reduce the previous high external deficits.

The only potential macroeconomic problem on the horizon is one that many developing countries would wish to have -- the problem of managing an economic boom. Policymakers are wisely concerned about surging private demand spilling into such undesirable channels as excessive current account deficits, inflation, and real estate speculation. Moral suasion and even traditional monetary policy instruments seem to be of limited effectiveness due to the high degree of financial openness. Fiscal policy continues to be the most effective instrument to manage the boom -- in this case by passively allowing the fiscal surplus to increase with the increase in revenues. So far, policymakers have avoided the mistakes of many other developing countries during previous booms -- sharp increases in public expenditure that lead to overindebtedness and then an abrupt end to the boom.

II. INTEREST RATE POLICY

The purpose of this section is to review Thai interest rate experience in terms of its structural characteristics. Despite the existence

of interest rate ceilings on bank deposits and loans, interest rates in Thailand have been volatile and responsive to demand and supply conditions over the past several years. The key interest rates are those relating to bank liquidity. Movements in these rates are transmitted to the remainder of the banking system and even lead to changes in the ceilings of the controlled rates. The ability of the Thai authorities to influence the marginal cost of bank liquidity is therefore the key to monetary policy in Thailand. Looking to the future, the authorities will wish to refine their approach to the determination of interest rates to ensure that they have the maximum flexibility to respond to developments in increasingly sophisticated markets. For this reason, the paper focuses on analyzing the role of policy interventions on interest rates, both with regard to interest rate ceilings and indirect influences on market-determined interest rates as well as fiscal and quasi-fiscal interventions which increase intermediation margins.

Section A starts with a brief description of the pattern of intermediation in the Thai economy in order to show the predominance of the banking system and hence the importance of focussing on bank interest rates; it then discusses recent trends in these interest rates. The following section looks at the effect of interest rate ceilings. Section C examines the determinants of short-run or money market interest rates, focussing on the respective roles of foreign interest rates and domestic liquidity conditions. Section D explores the instruments of monetary policy which may be used by the authorities to influence liquidity conditions and makes some suggestions on how this toolkit could be expanded and refined. Section E discusses long-term interest rates, and the role of policy in influencing the yield curve. Intermediation margins or the spread between borrowing and lending rates, is also subject to policy influence: in section F the magnitude of the various fiscal and quasi-fiscal impositions on this margin are reviewed.

A. The main interest rates and recent trends

What interest rates are important

Despite the recent surge in the importance of the equity markets in Thailand, the banking system still dominates intermediation. Neither quoted equity nor marketable debt securities approaches the value of the assets of the banking system. In 1985 the capitalization of equities traded on the securities exchange was equivalent to only 7 per cent of banking system credit. By the end of 1988 this had grown to 20 per cent, a ratio which continued to increase during 1989. Marketable government debt was only a little smaller at end-1988, but the bulk of this was held by the banking system. Marketable private debt securities came to the equivalent of less than 2 per cent of banking system credit. Thus banking system interest rates are the most important prices in the domestic financial system.

Flow of funds tables have been prepared for Thailand up to 1983 and they confirm the typical pattern of household saving in excess of its investments in non-financial form. On average over 1981-83 the household sector's annual net accumulation of financial assets was over 7 per cent of GNP (table 11). In contrast, the private non-financial business sector accumulated about the same net amount of financial liabilities, with further net deficits coming from the government and state enterprise sector. Summary flow statistics are shown in Table 11 which reveals the predominance of currency and bank deposits on the one hand, and loans on the other. The table shows that most domestic loans borrowed by the private sector were intermediated through the banking system, and this remains true today. The banking system is funded in large part by deposits from the public (accounting

for about 84 per cent of liabilities at end-June 1989), with some limited recourse to foreign borrowing (6 per cent) and to borrowing from the Bank of Thailand (4 per cent inclusive of the special soft loans). About 10 per cent of the banking system's assets are held in the form of Government bonds, with 83 per cent in private credit. Some 4 per cent are in foreign assets (cf. Table 12).

This structure of flows defines the main interest rates to be analyzed. They are the interest rates on bank deposits and loans, on government bonds, on the interbank market and in the repurchase market. These interest rates are determined, at least in part, through market forces. Though there are some subsidized credit programs, these account for only a small fraction of total financial claims in the system.

Trends. Interest rates have moved quite considerably over the years in response to market pressures. Following a period of high nominal and real interest rates during the late 1970s and early 1980s, monetary stability was restored during the first half of 1986 with money market rates falling as low as 5.5 per cent. Since late 1987 there has been a general upward trend, with a surge of rates during late 1988 and early 1989. Table 13 shows the main interest rates in effect in Thailand in recent years, and some of the rates are also plotted in figures 6-8. Figure 6 displays the movement of baht and US$ money market rates over twelve years. Though there is evidence of correlation in this figure, it is clear that, up to 1986, baht rates have normally been higher than US$ rates. Monthly US$ returns (annualized) on baht money market investments are shown in figure 9. The stability of the exchange rate before 1984 is evident, as is the importance of exchange rate fluctuations thereafter. As shown in figure 8, despite the depreciations of 1981 and 1984, baht investments showed a cumulative gain to mid-1989 from each starting date 1977-87.

Looking more closely at the past five years, the two interest rate peaks in 1985 and 1986 are clearly evident in figure 7, which also shows how closely interbank and repurchase market rates move together. The two peaks were not driven by international interest rate movements, nor can they be explained by subsequent exchange rate movements. They correspond to a period of tight monetary and credit policy.

Interest rate ceilings

Both lending and deposit rates of the commercial banks and the finance companies have been subject to ceilings, though the ceiling on long-term bank and finance company deposit rates was removed during 1989. Considering the low inflation rate in Thailand -- well under five per cent per annum until the second half of 1989 -- the interest ceilings have always permitted positive real rates throughout the 1980s.

On the lending side, the ceiling for banks was lowered from 19 per cent to 17.5 per cent in early 1983 only to be increased again for non-priority sectors to 19 per cent one year later (the lower ceiling of 17.5 per cent being maintained for loans to priority sectors). In early 1986 the ceiling was lowered again in two steps and unified at 15 per cent where it stands today. A higher rate has applied to finance companies (currently 18.5 per cent).

Before 1986, deposit rate ceilings varied by term. Looking at the rates for deposits between 12 months and two years, the ceiling on rates remained at 13 per cent until early 1986 when it was lowered, in two steps, to 9.5 per cent. As mentioned, the ceiling has recently been removed for deposits of over one-year's maturity. The ceiling on savings deposit rates is currently 7.5 per cent. Finance company promissory notes are subject to an interest rate ceiling currently at 13.5 per cent.

The degree to which these ceilings have actually bitten has varied over the years. As illustrated in figure 10, deposit rates have tended to fluctuate with money market rates: when the repurchase rate has exceeded the ceiling deposit rate, for example, the one-year deposit rate has been at or close to the ceiling. Deposit rates show less volatility than money market rates: when money market rates fell to about 5 per cent in 1987, the one-year time deposit rate remained at 7.25 per cent. When money market rates once more approached the ceiling on deposit rates in late 1988, the ceiling again began to bite. The authorities' response was to remove the ceiling on long-term deposit rates: this resulted in some banks increasing their deposit rates by between one-half and one percentage point over the old ceiling. Shorter term time deposits remain subject to the ceiling.

Despite the fact that prime lending rates have been well below lending rate ceilings (figure 11), lending rate ceilings do seem to bite continuously to a greater or lesser extent. This is illustrated by figure 12 which shows the distribution by interest rate of bank loans in 1985-88. For each year the distribution has two peaks: one at or about the prime lending rate, the other at the ceiling. (It is noteworthy that little lending occurred above the separate lending ceiling for priority sectors in 1985). Clearly, there would not have been such a bunching of loans made at 17.5 per cent in 1985 or 15 per cent in the other years had it not been for the fact that these were precisely the ceiling rates. Without ceilings the spread over prime charged to many borrowers would have been higher.

The degree to which the ceiling has been a binding constraint has varied, with the proportion of loans being made at the ceiling rates varying from 20 per cent to 47 per cent. The imposition of a much (between 2.5 and 4 percentage points) lower ceiling in 1988 resulted in a less than proportionate

shift in the interest rate charged to all borrowers. Some prime and super-prime borrowers did see their rate fall by three percentage points, but the proportion of loans at the ceiling jumped sharply.

A further striking point from figure 12 is the widening of the gap between the rates at which the two peaks in the distribution occur after 1986. This is reflected in a widening intermediation margin and increased profitability -- at least of the larger banks -- in those years. It is likely that lending rates to prime borrowers are not much influenced by the interest rate ceilings because of their bargaining power and alternative borrowing possibilities. The data suggests that a lowering of the ceilings will have its impact in the short-run on bank profits. If so, the banks may try to recover some of this by charging a higher spread over prime to some middle level borrowers. Theoretical considerations suggest that the higher risk borrower could also be expected to suffer from reduced availability, and that in the long-run interest rates for small depositors would probably fall.

B. Determination of short-term interest rates

The key rates

Determination of bank interest rates witnin the ceilings is influenced by demand and supply conditions which are also expressed in the effective interest rate for wholesale bank liquidity. Banks adjust their liquidity in the interbank market, in the repurchase market for government bonds or through borrowing from foreign correspondence in foreign exchange, which may in principle be covered. The BOT intervenes only in the repurchase market and in the spot foreign exchange market (not in the interbank market or in that for forward foreign exchange; it also provides lender of last resort facilities for up to seven days through its loan window).

The repurchase market in government bonds and the interbank market. The Bank of Thailand operates the repurchase market in Thai government bonds as a means of influencing liquidity in the banking system. The BOT acts as a market maker in that all bids and offers are made to it each morning. It can choose to satisfy the short end of the market in whole or in part, or to leave unsatisfied bids or offers. The sale and repurchase agreements (equivalent to a form of secured borrowing) are for terms of 1, 3, 15, or 30 days, with most activity concentrated at the shorter end. Any unsatisfied or emergent liquidity needs or surpluses can be addressed by individual banks in the interbank market in the afternoon. The BOT does not intervene in the interbank market.

The Treasury Bill auction. In many countries the Treasury bill is the key money market instrument and its yield is taken as the pivot on which other rates depend. For several years the quantity of Thai Treasury bills was substantial. Furthermore, there was a regular auction of the bills. However the improved fiscal situation has resulted in the supply of Treasury bills effectively drying up. There were no auctions between February and September of 1989. Furthermore, especially in recent years, the chief bidders for bills were public entities, and the yield determined at auction tended to be well below money market rates.

Foreign borrowing by banks. Some banks make quite heavy use of borrowing from correspondents abroad. Such borrowing is limited to a ceiling per bank of B5 billion or 20 percent of the bank's capital, whichever is the smaller. The exchange risk of borrowing in foreign exchange could be covered by individual banks in the forward market, which has become quite active at the short end, though contracts beyond six months maturity would be rare. Though it is active in the spot market, where it fixes a buying and selling

rate each morning, the BOT does not intervene in the forward foreign exchange market.

Role of foreign interest rates

The interest rates applicable to adjustments in bank liquidity are thus the interbank rate, the repurchase market rate and the foreign interest rate adjusted for the cost of forward cover. Though the available series for the interbank rate is not considered fully representative of market conditions, there appears to be quite a close correlation between these rates for the last few years. In particular, interest parity has normally prevailed during this period. However, in the mid-1980s periods of stress were associated with higher domestic interest rates than were reflected in the forward discount.[10]

The interest rates for bank liquidity have not been insensitive to domestic monetary conditions as they would be if capital mobility was perfect. Indeed, there is a close correlation between the repurchase rate in Bangkok

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10. It is possible to explain temporary deviations from covered interest parity in terms of risk management by market participants. Even in the presence of a limit on the net open position of banks, a bank can offset a forward foreign exchange sale it has made by purchasing spot foreign exchange and holding it in a low-risk form until the forward contract matures. The cost of this operation is the interest differential between baht and foreign short-term low-risk investments plus transactions costs. Likewise a purchase of forward foreign exchange by a bank can be offset by selling some spot foreign exchange. Arbitrage should ensure equality of the forward premium and the interest differential provided the banks still have positive spot foreign exchange holdings. However, if the bank runs out of spot foreign exchange, as it may at times of balance of payments stress, it may have to borrow abroad to offset the exchange risk on forward purchases of foreign exchange: the bank's credit abroad may be limited, thereby resulting in a forward premium higher than the interest differential. Even in this case, foreign banks could establish the arbitrage by purchasing baht spot, but only if they perceived no risk of capital controls being imposed on them if they could find suitable short-term baht instruments to hold with minimal credit risk.

and the amount of banks' net borrowing from abroad and the amount of their borrowing from the BOT. This suggests that capital does not move smoothly from foreign centers to meet any local requirements. The acquisition of baht assets by foreigners or by liquidation of foreign holdings by banks or non-banks is only induced by higher baht interest rates. Therefore monetary policy can influence domestic interest rates in the short run and, through these, demand conditions.

The technical note appended provides some econometric evidence in support of the proposition that domestic conditions have an influence on Thai interest rates in the short run. This area deserves further study in order to help the authorities plan their interventions on short-term interest rates and monitor their effectiveness.

C. Targets and instruments of monetary policy

Money-market interest rates as indicators

Although the monetary policy of the authorities is generally formulated in terms of monetary and credit aggregates, this policy is implemented by intervening to influence the availability and cost of bank liquidity. The attempt to achieve targets for the aggregates while monitoring interest rates poses difficult questions of judgment on an operational basis. In particular, deviations during the program year, from the originally expected path of external variables can result in higher interest rates than expected. The authorities recognize this by reviewing their targets for the monetary base quarterly, and their interest rate policy monthly. It is important for the authorities to keep their short-term operating procedures under review so that they maintain an accepted framework within which they can

respond with confidence to unexpected developments within the course of the credit year. They need both a prepared methodology for analyzing market trends -- so that they can quickly decide whether or not to lean against the wind of higher interest rates -- and a flexible mechanism for effecting whatever interventions they decide upon.

For example, the experience of the last few years is that the BOT has not fully accommodated within the year shifts in the demand for bank liquidity. Towards the end of 1988 especially, though the BOT was providing considerable liquidity support, this was not enough to prevent interest rates from rising quite sharply. Since the BOT took action to increase bank liquidity, this episode could be (and has been) considered one of expansionary monetary policy. But since interest rate differentials with abroad were allowed to rise, it could be argued that the episode was one of monetary tightness. The authorities need to be able to form their judgments on such situations even as they unfold. The increasing exposure of the financial markets to fluctuations in external flows will probably increase the difficulty of making these assessments.

By paying greater attention to interest rates, the authorities might also be in a position to smooth out seasonal fluctuations in monetary conditions. A fully effective interest rate policy would have succeeded in eliminating any systematic seasonal fluctuations or predictable transitory movements in interest rates. However there is some evidence from analysis of the past five years that some systematic seasonable patterns may remain. It is recommended that the authorities should intensify research efforts to enable them to improve their forecasting of the factors that influence bank liquidity conditions so that transitory and seasonal influences can be

eliminated, and so that unplanned conditions of monetary ease or tightness can be recognized for what they are and dealt with accordingly.

Reserve requirements

Reserve requirements are an element of the toolkit of monetary policy. However efficient monetary policy does not normally require a permanent complex range of requirements pitched at a high level. The requirements in Thailand are briefly reviewed here, together with some suggestions for streamlining them.

A number of reserve or liquidity requirements, some of them overlapping, apply to banks and finance companies. The basic reserve requirement is to hold an amount equivalent to seven per cent of total deposits in the form of deposits with the BOT (at least two per cent), eligible (government) securities (up to 2.5 per cent), and vault cash (up to 2.5 per cent). Of this seven, at least two must be in deposits with the BOT. Finance companies are also subject to a seven per cent requirement, though the composition is different: 0.5 per cent in deposits at the BOT, 1 per cent in deposits or call loans at commercial banks and 5.5 per cent of government bonds.

To be eligible for the award of new branch licenses, banks must satisfy a separate ratio, namely 16 per cent of deposits to be invested in eligible securities (including government and state enterprise bonds and bonds of the Industrial Finance Corporation of Thailand -- IFCT). Securities counted towards the basic reserve requirements may also be counted here. This branching requirement has recently been weakened to allow banks to sell up to 4 of the 16 on the repurchase market.

In addition, according to the local lending requirement, each bank branch established outside Bangkok since 1975 must lend at least three-fifths of its deposit resources locally, i.e. in its own or adjacent provinces. Failure to make such loans gives rise to a compulsory interest-free deposits at the BOT in the amount of the shortfall, or alternatively to the holding of government bonds in the amount of 4.5 times the shortfall. In mid-1989 the shortfall (apart from waivers granted) was B1.6 billion or about 0.17 of total bank deposits, of which B1.5 billion was placed at the BOT.

There is also a BOT guideline that banks should hold at least the equivalent of 20 per cent of deposits in liquid assets. This would automatically be satisfied by the combination of the basic reserve and the full 16 percent branching reserve.

Since cash reserves perform no useful role as a safety net in a modern banking system, these requirements -- apart from the local lending requirement, which is comparatively small -- should be seen as primarily the fulcrum on which the leverage of monetary policy is achieved and secondly as a form of assured and fairly inexpensive finance for the government. This fiscal role of the requirements is taken up below in the context of policy impact on intermediation costs. From the monetary policy point of view a number of comments may be made about the present system. One ratio should be sufficient to control the evolution of domestic credit. The basic reserve requirement is the instrument most attuned to such a purpose. The other requirements could be phased out without reducing the effectiveness of monetary policy. So far as the design of the primary requirement is concerned, nothing would be lost from a monetary control point of view by excluding government bonds from eligibility. Indeed, so long as government bonds are held in an amount far greater than the requirement, that portion of

the basic reserve requirement is redundant. By phasing out the reserve requirement, the authorities would also be facilitating the development of a transparent and active secondary market in government bonds.

The fact that finance companies are permitted to satisfy almost all of their reserve requirement through holdings of government bonds and bank deposits could prove to be a serious loophole in a period of monetary restraint, as banks could refer depositors to associated finance companies where the required reserves were less onerous for the group to satisfy. Since finance company promissory notes are essentially equivalent to time deposits at banks the requirements should be made equivalent.

If the branching requirement is to be phased out attention must be given to the transitional steps needed to avoid any inflationary impact of the change. The basic principle to be adopted here is to increase the yield on government bonds to the point where they are held voluntarily. If at that stage the banks are still the main holders, then the removal of the requirement will clearly have no immediate impact on the volume of bank lending. Even if the process of bringing the rate up to market leaves a greater volume in the hands of the non-bank public still, as a first approximation, this should have little or no effect on internal balance. The tax status of interest on the government bonds in the hands of the banks, together with the banks' own tax situation will clearly influence the rate at which the bonds would be held voluntarily by the banks. There will be no substitute for a gradual process of feeling the water in order to find and converge on the necessary rate.

Mechanisms of intervention

Considering the steadily increasing sophistication of the Thai banking system, the instruments used by BOT for influencing liquidity

conditions seem somewhat inflexible. The main instrument is intervention in the repurchase market. In 1987-88, BOT also issued its own bonds to the banks in order to mop up liquidity. The banks may also have access to the loan window of BOT for last resort facilities, but this use is limited in duration and generally at a penal rate.

The repurchase market is conducted as a daily auction where, by convention, the participants generally make bids or offers only at a single interest rate. By netting the bids and offers, BOT arrives at the net deficiency or surplus in the market, which it can choose to satisfy or leave uncovered. The BOT has no mechanism for taking the initiative in signalling its intentions for the direction of the interest rate except by failing to satisfy the net demand. Thus if interest rates are, in the view of BOT, too low, then it will leave an unsatisfied demand for liquidity at the end of the morning repurchase market fixing, leaving it to the deficit banks to make up their deficit in the interbank market or eventually at the loan window. Considering that it will not be easy for the banking system as a whole to generate additional liquidity within the day, the likelihood is that substantial deficits in the repurchase market will result in the loan window being used that day. In the case where BOT wishes to see interest rates lower, it will arrange that the repurchase market is left with unsatisfied offers of liquidity. (If necessary to achieve lower rates when the market begins with unsatisfied demand, the BOT could supply all demands expressed by deficit banks leaving the surplus banks unsatisfied.) Once again this will push the banks into the interbank market. That market should experience a falling of rates, but it may well be that banks will end the day with excess holdings of cash.

Under the existing arrangements, it seems that BOT may not have an easy way to take the initiative in influencing the trend of interest rates, especially if it wishes to see interest rates increase. For example, the recent strength of inward capital movements has created the need for more vigorous action to sterilize the impact on domestic liquidity. The issue of BOT bonds has been employed for this purpose, but this has been seen as an exceptional measure, and the bonds had a two-year maturity. The BOT should consider sale of shorter-term bills or the occasional use of aggressive bidding for deposits -- either on an overnight basis or at term -- from the banks as supplementary flexible means of allowing it to influence rates in an upward direction when that is needed. Any such deposit taking arrangement should not, however, become an open ended and permanent repository for surplus bank funds. The BOT bills would have the added advantage of being negotiable in the secondary market at a time when the diminished supply of government paper is probably impeding the development of the money market.

The BOT might also consider the advantages of intervening in the forward foreign exchange market. For example, at times when the covered interest parity condition fails to hold, BOT could step in to correct the market imperfections by buying forward foreign exchange. On the whole, outright sale of forward foreign exchange involves more risk than benefits especially at times of lack of confidence in local currency. If the currency has in fact depreciated by the time the forward contract matures, the effect will be an undesired expansion in bank liquidity. A second use of forward foreign exchange intervention could be in the form of a swap transaction whereby BOT could acquire foreign exchange under a swap or repurchase agreement and thereby influence domestic liquidity conditions -- and lower interest rates -- without requiring the banks to have holdings of government

bonds as at present. However, the adverse experience of other central banks in supporting the forward foreign exchange market at unrealistic rates is a reason for exercising great caution in this area.

D. Regulatory and quasi-fiscal impacts on the cost of intermediation

Certain taxes, reserve requirements and lending restrictions have the effect of increasing the spread required between borrowing and lending rates for banks to remain viable. The purpose of this section is to review the most notable of these quasi-fiscal impositions and to indicate the likely magnitude of their impact. This exercise requires a certain amount of discretion to be exercised in choosing what impositions to include. In what follows it has been decided to ignore corporate income tax and withholding taxes on interest income paid to depositors[11] on the grounds that these taxes are parallel to those imposed on other sorts of income. Capital adequacy requirements are also neglected, on the grounds that they serve to correct a distortion which would exist in the absence of adequate bank capital.

In Thailand the main remaining quasi-fiscal impositions are (1) the business tax imposed on all receipts of the banks, mostly at the rate of 3.3 per cent;[12] (2) the non-interest bearing component of the 7 per cent reserve

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11. The general rule for domestic investors is that interest income and capital gains are subject to personal or corporate income taxation. The personal income tax is on a progressive scale with rates rising from 5 to 55 per cent; corporate tax is at 30 per cent for listed companies, 35 per cent for non-listed. However, individuals may opt to can acquit themselves of this liability through the withholding tax, which is typically at the rate of 15%. Certain exemptions are important, among which may be mentioned: for individuals, savings deposit interest and all interest on deposits of less than B200,000, and government bond interest (or capital gains) up to the savings deposit interest rate.

12. Foreign exchange margins are taxed at 15 per cent.

requirement; (3) the requirement to hold government bonds in order to be eligible for the grant of branching licenses; (4) the agricultural agribusiness and rural lending requirements; (5) the payment to the Financial Institutions Development Fund -- FIDF (which deals with bank rescues); (6) the penalty for failing to lend sufficiently within the region in which deposits have been raised. The actual costs of these impositions in cash terms can be worked out, but it depends on the assumption made as to the alternative behavior of banks if the impositions did not exist. As a first approximation, it is customary to assume that the bank will have to charge its prime borrowers a spread above the marginal cost of funds which is sufficient to cover that marginal cost of funds in addition to satisfying all of the requirements. On that assumption, it may be calculated that the average spread is increased by about 1.5 per cent by all of the impositions. This figure has been fairly steady for the last few years. The main contributors to the cost have been the business tax, the non-interest bearing component of the reserve requirement and the branching requirement.

It is difficult to be sure about where the incidence of this implicit tax falls. On the one hand the considerable openness of the economy means that large depositors and large prime or super-prime borrowers may be able to escape higher interest rates by their option to place funds abroad (despite the exchange risk). On the other hand the interest rate ceiling limits the degree to which the banks can pass the cost in higher interest to less favored borrowers. Probably the tax has its chief impact on ancillary charges made by banks for non-prime borrowers and on the cost of services to small depositors. As the burden of this implicit tax is borne by a fraction of the customers of the bank, it bears proportionately more heavily on them than the spread of 1.5 percentage points would suggest.

The conclusion must be that, though, the quasi-fiscal impositions are not nearly as high as observed in high inflation countries such as Philippines 1984-85, Turkey, or Zambia, they remain significant. For instance, 1.5 per cent is about one half of the value added of the banks. Consideration should be given to the possibility of reducing these taxes in the general context of fiscal policy improvements. Of course any changes here would have to consider the alternative sources of revenue or reductions in government expenditures that would be needed. These might not be inconsiderable when it is noted that these measures save the government some B15 billion or so; the equivalent of 5 per cent of government revenue.

Nevertheless, there are particular problems which need to be addressed, especially the impact of the business tax on interbank lending which seriously limits the potential of the interbank market to perform an effective channeling of funds to their most efficient uses. The VAT to be introduced in 1990 will replace the business tax except for the financial system. It would be a pity not to take advantage of this change at least to abolish the "cascading effect of business tax which occurs because interbank transactions are not free of tax. Also the tax could be recast to give relief on interest paid: this would require a higher rate of tax on the remainder of interest, unless some loss of revenue is to be tolerated.

III. CONCLUDING REMARKS

The recent Thai boom has been accomplished in an economy with considerable openness to external forces. Despite the fiscal correction achieved during 1986-89, the domestic demand expansion has made itself felt in a widening of the current account deficit. While this deficit partly reflects the need for a surge of capital expenditure to avail of export prospects and

to provide the necessary infrastructure, care will have to be taken to ensure that investment does not get too far out of line with the long-run savings potential of the economy.

The ability of the Thai financial sector to provide the investible funds that are demanded by the boom is influenced by its ability to mobilize savings, by official policy regarding credit allocation and by the degree to which capital is free to flow internationally. Resource mobilization in Thailand is impressive: its liquidity ratio is surpassed by only a handful of developing countries. While there is a number of selective credit measures, mainly favoring agriculture, agri-business and commodity exports, these are either relatively small in their scope, or tend to be only partially enforced, and so only distort the allocation of credit slightly. A number of quasi-fiscal requirements add about 1.5 percentage points to gross banking spreads.

Although capital movements are restricted, and although there is evidence that domestic monetary conditions do have a short-run impact on wholesale interest rates, nevertheless wholesale interest rate tend to converge to foreign levels in the medium term, suggesting that the impact of monetary policy is only in the short-run. The interest rate ceilings on bank loans have probably lowered the cost for some non-prime borrowers, but may have increased rates for others and excluded some high-risk borrowers.

We have made a number of recommendations for the further development of monetary policy instruments and for the recasting and reduction of quasi-fiscal and credit allocation impositions on the financial system.

THAILAND
Table 1: GDP by Industrial Origin and Expenditure
(Millions of baht)

	Average 1970-79	Average 1980-85	1986	1987	1988
	<----------(% of GDP at Current Prices) ------->				
Agriculture	25.7	19.8	16.5	16.1	16.9
Non-Agriculture	74.3	80.2	83.5	83.9	83.1
Mining & Quarrying	2.8	3.3	3.1	3.1	3.0
Manufacturing	4.6	5.3	5.2	5.1	5.1
Construction	19.0	21.8	23.3	23.9	24.4
Elect'y & Water Supply	1.2	1.7	2.6	2.6	2.6
Transpo. & Communication	5.9	6.7	7.8	7.5	7.3
Trade	18.0	16.6	15.5	15.6	15.8
Financial Services	2.2	2.6	2.6	3.1	3.2
Real Estate /1	0.4	0.7	0.8	0.8	0.9
All others	20.3	21.5	22.5	22.1	20.8
	<------ (% change at Constant 1972 Prices) ---->				
Agriculture	4.2	4.9	0.2	-2.0	8.6
Non-Agriculture	7.9	5.8	5.6	10.8	11.5
Mining & Quarrying	6.3	4.6	-2.0	7.3	13.5
Manufacturing	10.9	4.6	9.6	13.6	12.4
Construction	5.1	4.3	-2.9	8.1	13.7
Elect'y & Water Supply	14.2	11.0	12.4	9.0	13.4
Transpo. & Communication	6.6	7.0	7.2	8.3	10.8
Trade	6.3	4.8	4.5	11.5	13.2
Financial Services	8.2	6.9	-0.7	33.6	16.3
Real Estate /1	11.0	8.6	11.4	6.6	26.8
All others	7.3	7.1	4.3	7.7	7.7
TOTAL GDP (constant prices)	7.0	5.6	4.5	8.4	11.0
Aggregate Demand	7.0	5.2	4.0	11.6	13.1
Consumption	6.8	4.8	4.0	6.4	8.8
Private	6.3	4.1	5.0	7.6	9.8
Government	9.5	7.7	0.2	1.1	4.2
Gross Fixed Investment	6.7	4.0	-4.2	13.2	17.7
Private	6.7	3.2	-0.2	26.2	23.4
Public	6.5	5.4	-11.5	-13.3	0.7
Domestic Demand	6.6	4.6	1.7	9.2	10.6
Exp of Goods & Services	9.7	8.2	14.6	21.6	22.6
Imp of Goods & Services	7.1	1.7	3.3	28.4	30.9

/1 Includes insurance.
Source: NESDB, 1989.

THAILAND

Table 2: Inflation Rates (1976 = 100)

	1982	1983	1984	1985	1986	1987	1988	1989 *
CPI (all items)	181.1	187.9	189.5	194.1	197.7	202.6	210.4	
Food	176.6	185.5	183.4	178.9	180.8	184.1	193.5	
Non-food	181.8	186.7	191.2	202.2	207.5	213.0	219.7	
PPI (all items)		174.5	169.1	169.0	168.4	178.4	193.0	
		<---------- % Change ---------->						
CPI		3.8	0.9	2.4	1.9	2.5	3.8	4.9
Food		5.0	-1.1	-2.5	1.1	1.8	5.1	7.5
Non-food		2.7	2.4	5.8	2.6	2.7	3.1	3.2
PPI			-3.1	-0.1	-0.4	5.9	8.2	5.0

* January - August 1989 average increase over same period in 1988.

Source: Quarterly Bulletin, Bank of Thailand, Vol. 29 no. 1, March 1989.

THAILAND
Table 3: Gross Investment and Savings
(Millions of baht)

	Period Average				
	1970-79	1980-85	1986	1987	1988
Investment / GDP	25.8	25.1	22.0	25.8	27.5
Fixed Inv / GDP	23.8	24.3	21.7	23.5	25.8
Priv Inv / GDP	17.4	15.7	14.1	17.3	20.0
Public Inv / GDP	6.4	8.6	7.6	6.3	5.8
Inventories/ GDP	2.0	0.9	0.4	2.3	1.7
Savings / GDP	22.6	19.7	22.7	24.9	24.5
Total Private / GDP	19.0	19.1	18.4	19.1	19.4
Net Private / GDP	12.2	12.0	9.8	10.7	11.4
Depreciation / GDP	6.8	7.1	8.5	8.3	8.0
Public Savings/ GDP	2.8	1.3	1.8	3.8	7.2
Resource Bal / GDP	-3.2	-5.4	0.6	-0.9	-3.0
Priv Resc Bal /GDP	-0.4	2.6	4.0	-0.4	-2.4
Pub Resc Bal / GDP	-3.6	-7.3	-5.8	-2.5	1.5
Discrepancy / GDP	0.8	-0.7	2.5	2.0	-2.1

Source: NESDB, 1989.

THAILAND

Table 4: Fiscal Account Summary
Consolidated Non-financial Public Sector
(as percentage of calendar year GDP)

	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89 e
Revenue & Grants	16.67	17.87	19.17	19.28	19.42	20.15	22.01	22.75
Revenue	16.35	17.54	18.77	18.91	18.93	19.59	21.59	22.32
Central Government	14.17	14.99	15.24	15.83	15.15	15.83	17.70	19.08
Local Government	0.91	0.91	0.97	0.98	0.98	0.97	0.93	0.91
Non-fin public enterprises	1.26	1.65	2.56	2.10	2.79	2.79	2.96	2.33
Grants	0.32	0.33	0.40	0.37	0.49	0.57	0.42	0.43
Central Government	0.32	0.33	0.40	0.37	0.49	0.57	0.42	0.43
Expend & Lending - Repayments	24.42	23.47	23.67	25.52	24.09	21.61	20.84	21.01
Current Expenditure	16.00	16.00	16.63	17.51	16.82	15.69	14.63	14.62
Central Government	14.96	15.02	15.56	16.45	15.82	14.83	13.74	13.78
Local Government	1.03	0.98	1.08	1.05	0.99	0.86	0.89	0.85
Capital Expenditure	8.32	7.49	7.05	7.89	7.18	5.93	6.26	6.35
Central Government	4.02	3.51	3.10	3.78	3.39	2.82	2.32	2.41
Local Government	0.62	0.62	0.56	0.59	0.57	0.46	0.50	0.48
Non-fin public enterprises	3.69	3.37	3.39	3.52	3.22	2.66	3.44	3.46
Lending minus Repayment	0.10	-0.02	-0.01	0.12	0.09	-0.01	-0.05	0.04
Central Government	0.10	-0.02	-0.01	0.12	0.09	-0.01	-0.05	0.04
Deficit(-)/ Surplus(+)	-7.75	-5.60	-4.51	-6.23	-4.67	-1.47	1.16	1.73
Financing	7.88	5.64	4.47	6.32	4.63	1.45	-1.23	-1.69
External Borrowing	3.18	2.42	1.48	2.75	1.41	0.16	0.46	0.16
Receipt	4.03	3.26	3.69	5.39	4.11	2.30	2.77	1.36
Repayments	0.85	0.85	2.21	2.64	2.70	2.14	2.31	1.20
Domestic Borrowing	4.71	3.22	2.99	3.57	3.22	1.29	-1.69	-1.85
Banks	3.58	1.38	2.10	0.81	1.10	0.26	-3.41	-1.77
Non-banks	1.12	1.84	0.89	2.76	2.12	1.04	1.72	-0.08
Government Savings Bank	0.53	0.81	0.67	1.11	1.31	1.35	0.87	-0.07
Others	0.60	1.03	0.22	1.66	0.81	-0.31	0.85	-0.01
Discrepancy: Deficit - Financing	0.13	0.03	-0.04	0.09	-0.04	-0.02	-0.06	0.04

Source: Bank of Thailand, 1989.

Figure 1

THAILAND

Current Account & Public Sector Deficit

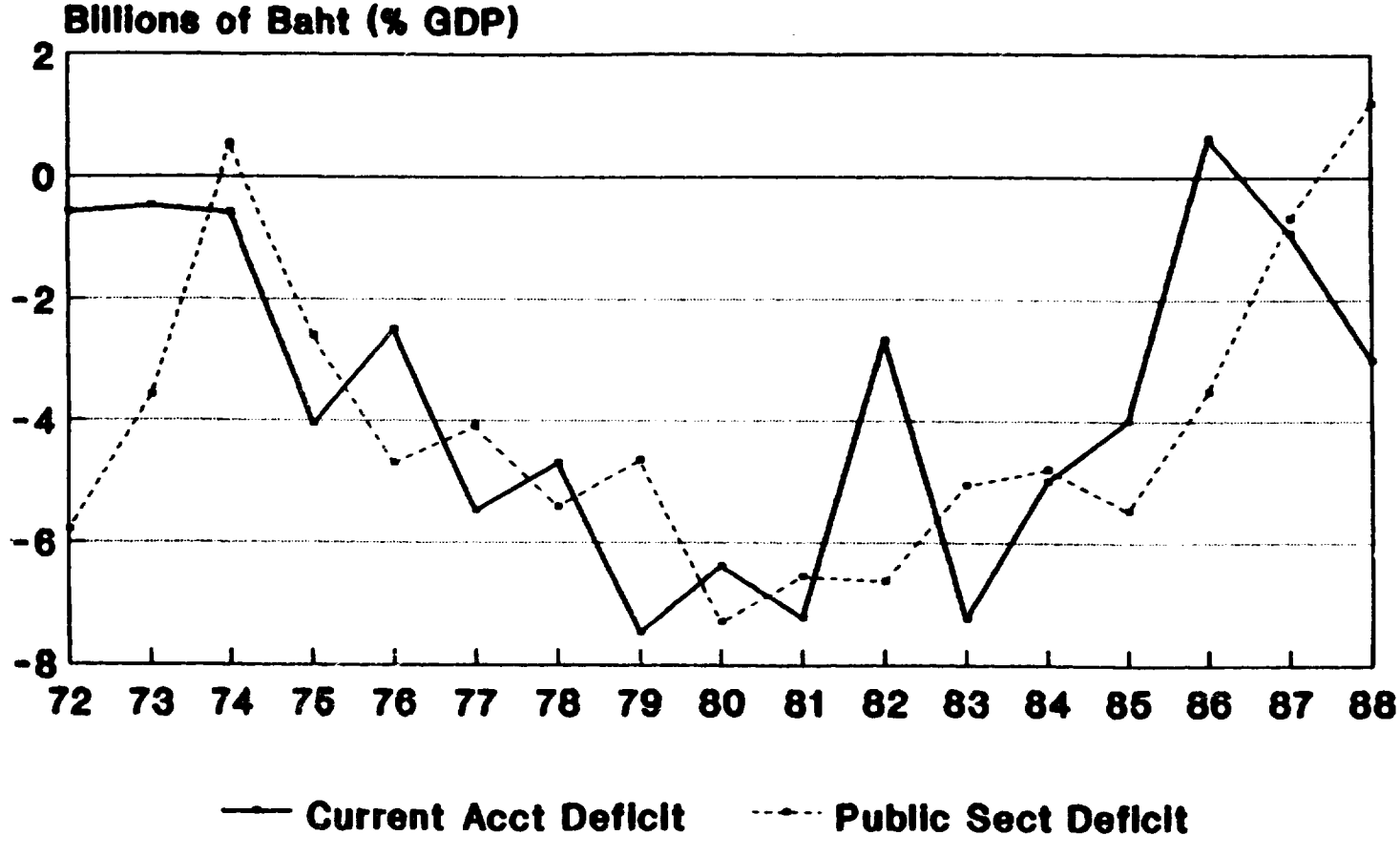


Figure 2

BANK OF THAILAND

Change in Foreign and Domestic Assets

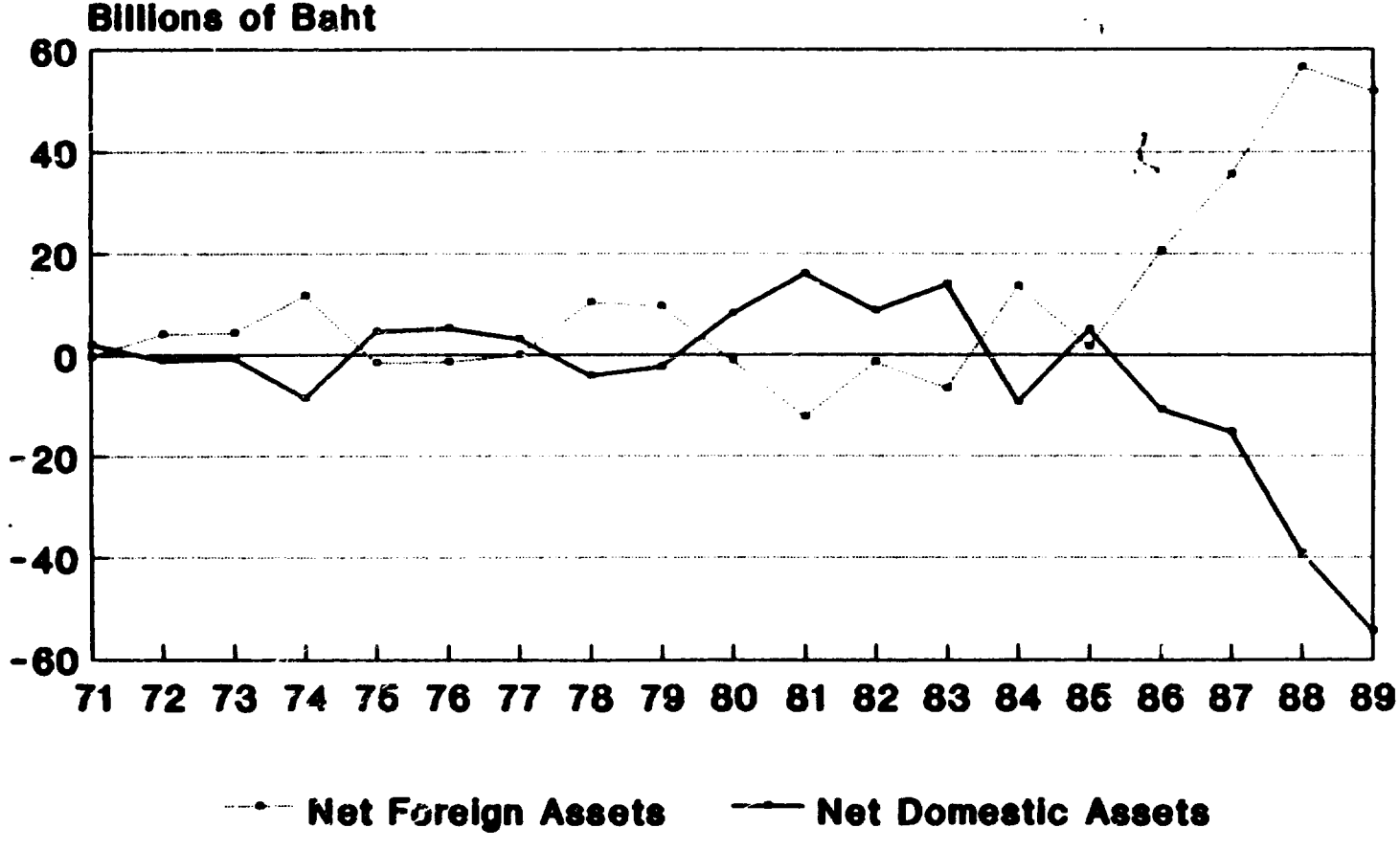
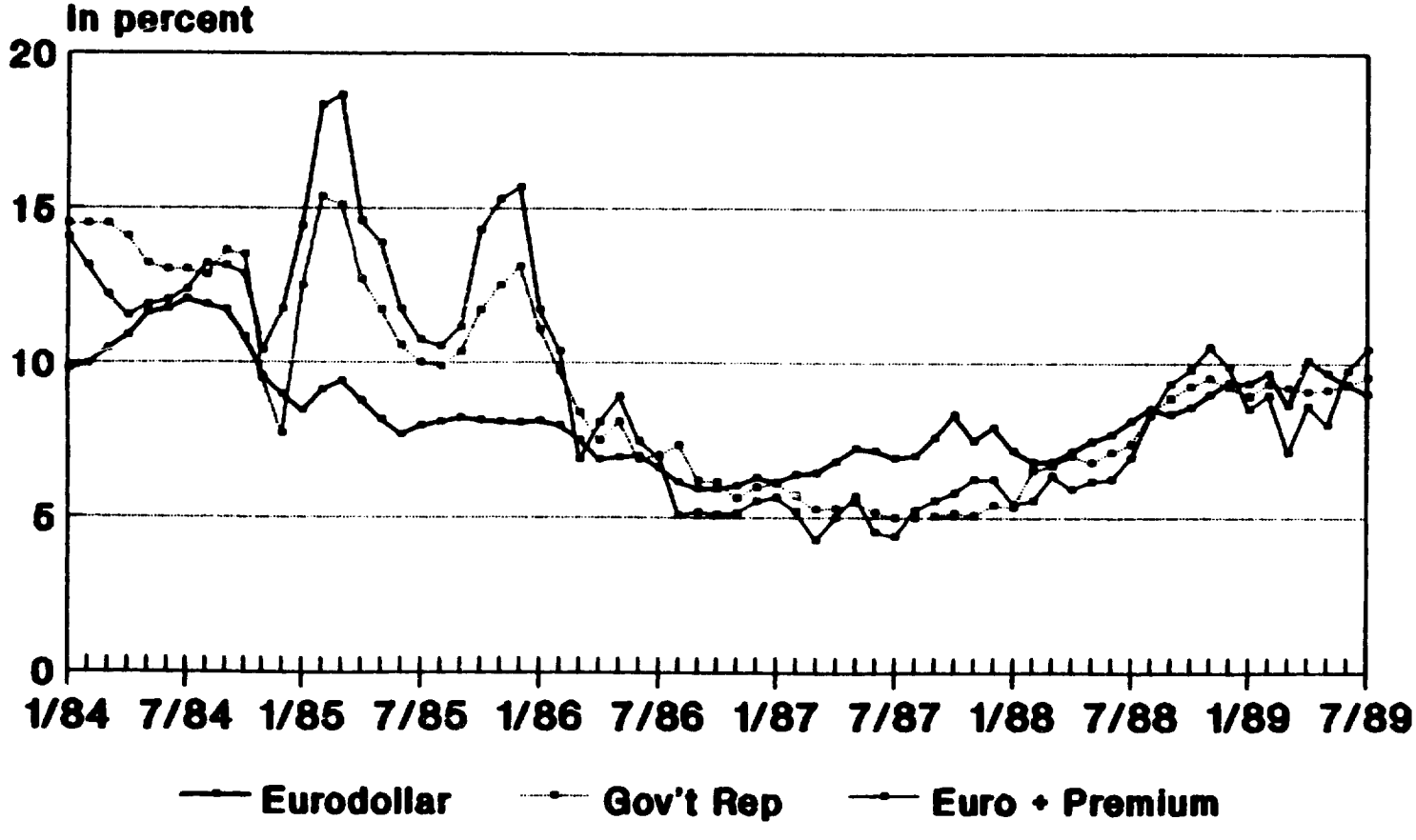


Figure 3

THAILAND
Interest Rates



THAILAND

Table 5: External Financing Ratios
(Millions of baht)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Ratios:(%)	<---------- % of Investment ---------->										
Total External Financing/Total Inv	10.9	17.5	22.9	23.1	20.6	15.2	18.9	39.4	12.4	13.7	3.0
Total Debt Flows /Tot Investment	10.1	16.8	20.7	19.9	18.3	11.7	15.0	37.6	9.6	10.8	-4.0
DFI / Total Investment	0.8	0.7	2.2	3.2	2.3	3.5	4.0	1.8	2.9	2.8	7.0
Total Private /Priv Invest	2.5	7.6	13.4	13.6	9.0	11.4	18.1	11.0	-1.7	0.0	10.8
Debt /Priv Investment	1.1	6.4	9.8	8.3	5.6	5.7	11.9	8.0	-6.2	-4.2	1.2
DFI /Priv Investment	1.3	1.1	3.6	5.3	3.4	5.7	6.2	3.0	4.5	4.2	9.6
DFI loans/ Priv Invest							1.6	-0.7	0.7	-0.6	1.9
DFI equity/ Priv Invest							4.6	3.7	3.8	4.8	7.8
Total Public /Pub Invest	34.5	44.9	43.6	43.9	41.7	26.3	21.5	87.0	39.1	56.1	-23.0
	<---------- % of GDP ---------->										
Total Debt Stock/ GDP	11.3	14.5	17.7	20.6	23.3	24.1	26.2	34.2	33.8	32.8	26.5
Total Priv Debt Stock/ GDP	3.9	4.5	5.4	6.0	6.4	6.7	8.2	9.0	7.5	6.9	5.2
Total Pub Debt Stock/ GDP	7.4	9.9	12.3	14.6	16.9	17.4	18.0	25.2	26.3	26.9	21.3

/1 Includes direct foreign investment.
Source: IFS Yearbook, 1989; Bank of Thailand, 1989.

THAILAND

Table 6: Financial Aggregates, Ratios to GDP, Investment, and Savings

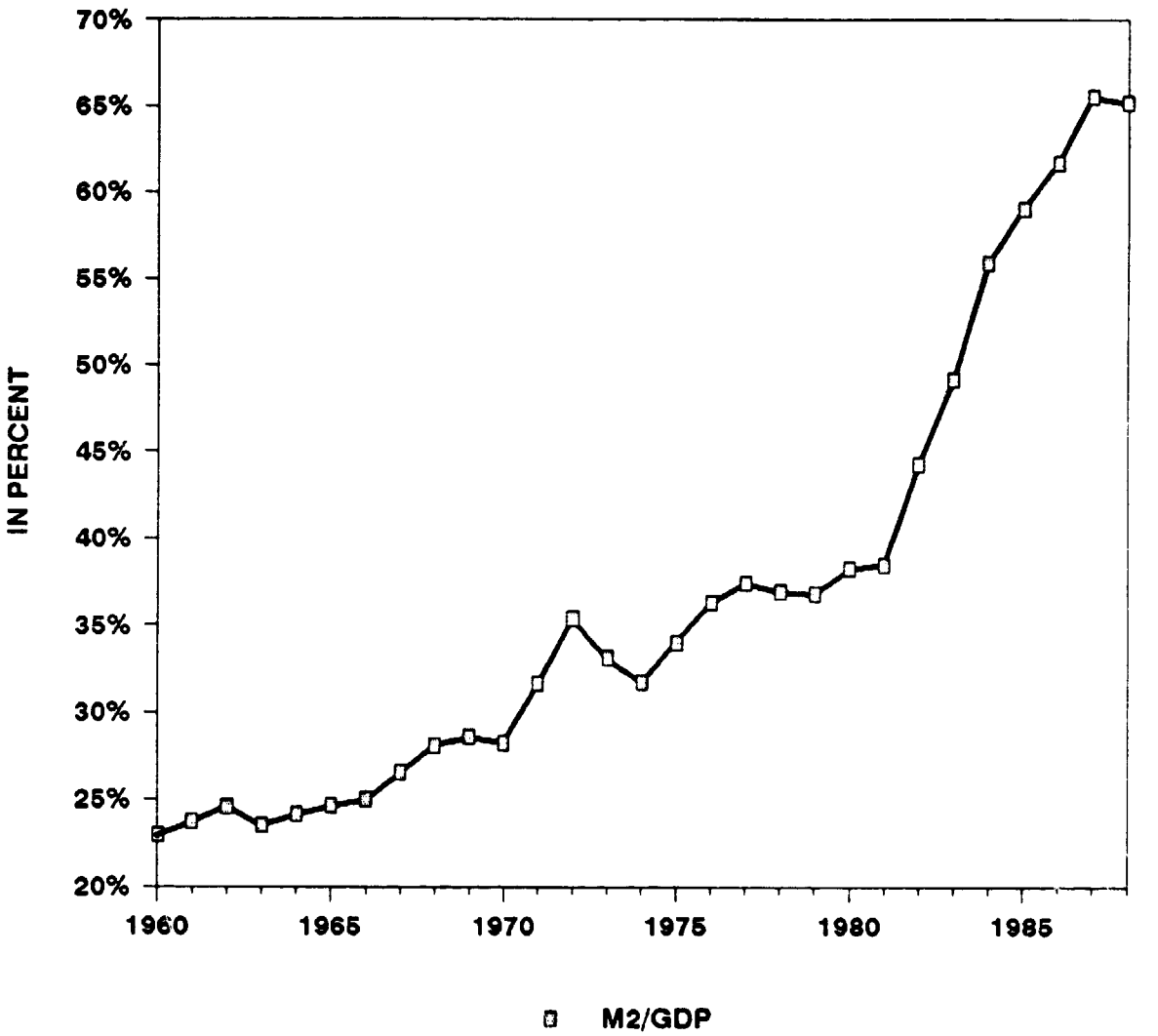
	Period Average					
	1970-79	1980-85	1986	1987	1988	1989 e
Base Money/GDP	10.0	8.2	8.2	8.9	8.9	8.1
M1/GDP	12.4	9.4	9.1	10.1	9.8	9.9
M2/GDP	34.2	46.7	58.3	61.7	63.3	65.4
Quasi-Money/GDP	21.8	37.2	49.2	51.6	53.5	55.5
Private Credit/GDP /1	26.1	40.9	47.7	52.0	57.3	
Public Credit/GDP /2	9.3	14.9	16.2	14.5	9.5	
Total Domestic Credit/GDP	35.4	55.8	63.9	66.5	66.7	
Net Foreign Assets/GDP	10.4	4.2	7.0	8.2	9.7	
Ratios to Saving or Investment:						
Change in M2/Private Saving	46.0	63.6	70.6	100.6	88.5	
Change Private Credit/Private Investment	29.0	40.3	16.5	60.1	62.6	
Change Public Credit/Public Investment	25.2	26.5	17.9	4.3	-56.5	

/1 Includes other financial institutions.
/2 Includes public enterprises and the government.
Source: IFS Yearbook, 1989. Bank of Thailand; NESDB.

Figure 4

Thailand

Ratio of M2 to GDP, 1960-1988



THAILAND
Table 7: Real Interest Rates - Structure and Level
(End of period, In Percent)

	1980 Dec.	1981 Dec.	1982 Dec.	1983 Dec.	1984 Dec.	1985 Dec.	1986 Dec.	1987 Dec.	1988 Dec.	1989 Jun.	
Deposit Rates: /1											
Nominal											
Ceiling	12.00	13.00	13.00	13.00	13.00	13.00	9.50	9.50	9.50		/2
Actual						11.00	7.25	7.25	9.50	10.00	
Real											
Ceiling	-3.78	0.60	10.16	8.84	13.42	9.36	7.69	5.63	6.16		/2
Actual						7.43	5.47	3.46	6.16	5.48	
Loan Rates:											
Nominal											
Ceiling	18.00	19.00	19.00	17.50	17.50 /3	17.50 /3	15.00	15.00	15.00	15.00	
Actual						15.50	12.00	11.50	12.00	12.50	
Real (actual)						11.78	10.14	7.56	8.58	7.87	
Interbank Rates:											
Nominal						15.03	6.35	6.50	10.61	9.34	
Real						11.33	4.59	2.73	7.23	4.84	
Gov't Repurchase Rate:											
Nominal					7.69	13.11	5.98	5.41	9.23	9.26	
Real					8.09	9.47	4.22	1.68	5.90	4.77	

/1 12 months - 2 year deposit rate.
/2 Ceiling was discontinued June 1989.
/3 Loan ceiling for priority sectors.
Source: Quarterly Bulletin, Bank of Thailand, 1989.

Table 8: Bills, Loans, and Overdrafts of Commercial Banks as percentage of GDP value added, classified by sectors

	1981	1982	1983	1984	1985	1986	1987	1988
›an/ Value Added:								
_riculture	9.8	14.1	16.4	21.4	23.2	21.9	23.3	23.1
ining & Manufacturing	31.5	33.2	41.3	43.4	47.6	44.3	49.7	56.8
:al Estate & Construction /1	20.5	21.9	26.9	26.7	27.0	25.1	26.6	28.2
rade - w'sale, retail	42.8	53.2	68.7	73.0	79.8	75.1	72.9	70.7
·blic Utilities	10.5	7.9	8.4	8.5	9.4	8.3	10.1	9.5
nking & Other Financial	70.9	81.3	104.9	111.6	113.7	118.0	162.6	116.9
rvices	13.1	14.6	16.3	18.5	18.9	18.9	21.0	25.2
TAL LOAN/ TOTAL VAL ADDED /2	32.1	35.4	42.7	46.7	49.4	47.6	53.4	56.4

Personal loans to consumers for housing is included under real estate and construction and excluded from personal consumption loans. Value added includes ownership of dwellings.
Loans excludes personal consumption.

urce: Bank of Thailand; NESDB, 1989.

Figure 5

Thailand

Growth in GDP, Construction, Real Estate and Financial Services

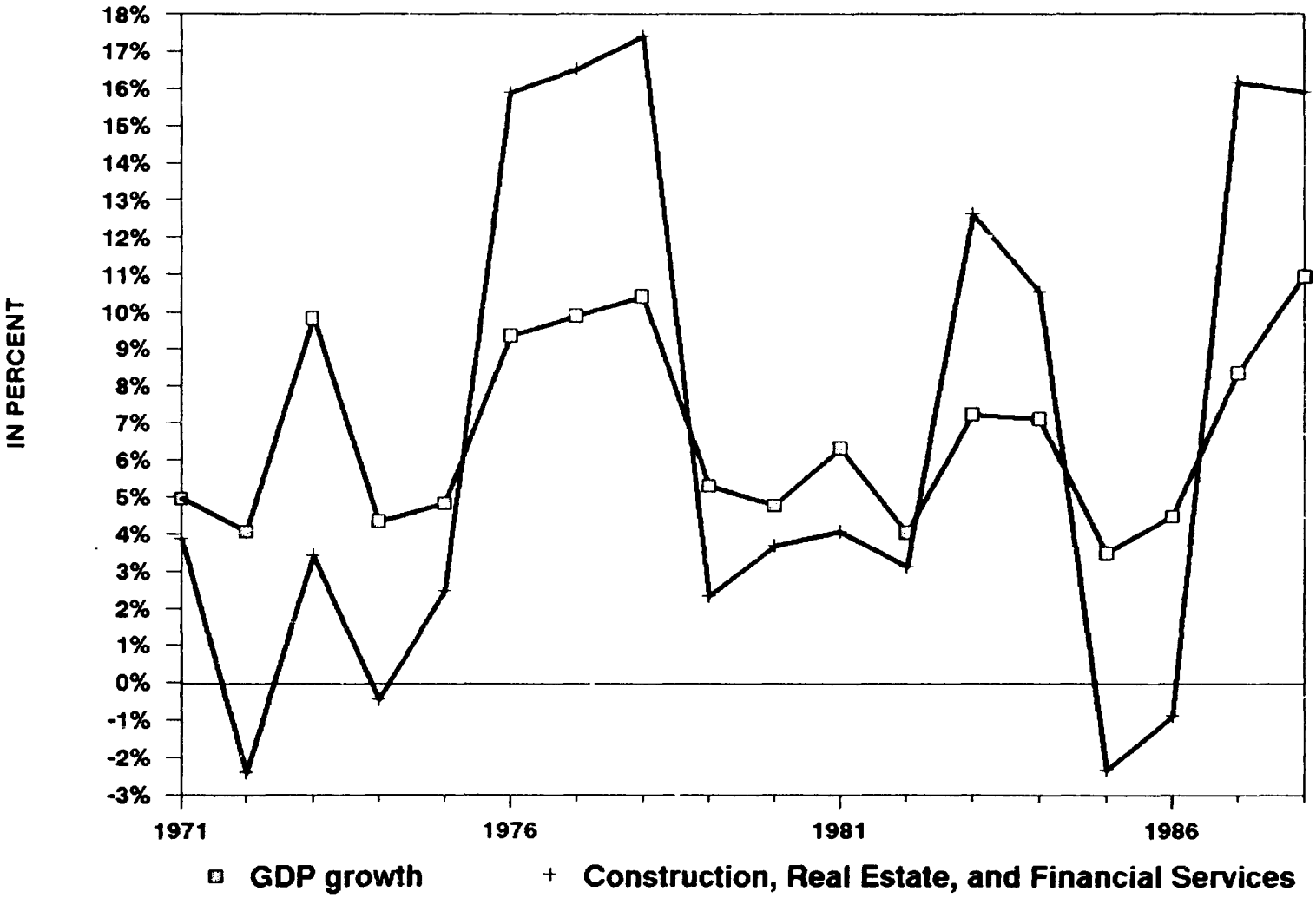


Table 9
AGRICULTURAL CREDIT
Commercial Banks

Percentages of Deposits

Year	Agricultural credit					Agri-Business			Total		
	Direct Credit (DC)	Target	Shortfall	Deposits at BAAC	DC + BAAC - Target	Credit	Target	Actual - Target	Total	Target	Actual - Target
1975	3.19%	5.00%	1.81%	2.40%	0.59%				5.59%	5.00%	0.59%
1976	4.35%	7.00%	2.65%	3.60%	0.95%				7.95%	7.00%	0.95%
1977	5.50%	9.00%	3.50%	4.22%	0.72%				9.72%	9.00%	0.72%
1978	6.19%	9.00%	2.81%	4.21%	1.41%	5.50%	2.00%	3.50%	12.38%	11.00%	1.38%
1979	6.33%	11.00%	4.67%	4.02%	-0.65%	5.63%	2.00%	3.63%	12.31%	13.00%	-0.69%
1980	6.62%	11.00%	4.38%	4.01%	-0.37%	5.70%	2.00%	3.70%	13.30%	13.00%	0.30%
1981	6.77%	11.00%	4.23%	3.63%	-0.60%	4.62%	2.00%	2.62%	12.96%	13.00%	-0.04%
1982	7.82%	11.00%	3.18%	3.27%	0.09%	4.16%	2.00%	2.16%	13.51%	13.00%	0.51%
1983	8.91%	11.00%	2.09%	2.74%	0.65%	4.18%	2.00%	2.18%	13.88%	13.00%	0.88%
1984	8.92%	11.00%	2.08%	2.37%	0.29%	4.53%	2.00%	2.53%	13.44%	13.00%	0.44%
1985	7.71%	11.00%	3.29%	2.18%	-1.11%	4.83%	2.00%	2.83%	11.88%	13.00%	-1.12%
1986	7.31%	11.00%	3.69%	2.03%	-1.67%	4.97%	2.00%	2.97%	11.31%	13.00%	-1.69%
1987	9.00%	14.00%	5.00%	1.99%	-3.02%	7.88%	6.00%	1.88%	16.78%	20.00%	-3.22%
1988	9.84%	14.00%	4.16%	1.90%	-2.26%	7.85%	6.00%	1.85%	17.57%	20.00%	-2.43%

Notes
1. Excludes rediscount notes to the Bank of Thailand
2. Excludes credit for agri-businesses of banks exceeding the target
3. Includes small-scale industries in regions
4. Made up of direct credit to farmers of 45,837.8 million Baht and 10,026.0 million Baht to small scale regional industries
5. Same as #4, but the amounts to farmers and to small scale industries are 56,764.8 and 16,445.9 million Baht, respectively.

Table 10: Development credits by Bank of Thailand (million baht)

	1982	1983	1984	1985	1986	1987	1988	1989 June
Export credits	15801	18602	19540	19142	19888	17966	35408	16402
Industrial credits	1439	954	874	424	414	439	428	207
Agricultural credits	288	206	219	211	1354	1593	1055	1929
Other	8343	6912	11267	17016	26746	35383	35271	34582
TOTAL	25870	26674	31900	36793	48402	55381	72161	53119
Total credit by sector--commercial banks								Proj
Export	28992	32022	39733	45020	50144	60809	72067	81515 \1
Manufacturing	64893	88713	106049	122577	124945	162238	223931	253286 \1
Agriculture	22140	30541	37409	39355	39694	46137	57184	64681 \1
ther	190763	260686	298661	322553	334241	422598	513680	581019 \1
Total	306788	411963	481852	529504	549024	691781	866862	980500
Ratio of development credits to commercial bank credits by sector								Proj
	<---------- Percent ---------->							
Export	54.5	58.1	49.2	42.5	39.7	29.5	49.1	20.1 \1
Manufacturing	2.2	1.1	0.8	0.3	0.3	0.3	0.2	0.1 \1
Agriculture	1.3	0.7	0.6	0.5	3.4	3.5	1.8	3.0 \1
Other	4.4	2.7	3.8	5.3	8.0	8.4	6.9	6.0 \1
Total	8.4	6.5	6.6	6.9	8.8	8.0	8.3	5.4

\1 Figures for sectoral credit in June 1989 are projected by assuming the same shares of total credit as in December 1988.

Table 11

THAILAND: FLOW OF FUNDS 1981-83

	Household			Business			General Government		
	NF/GNP	A/GNP	L/GNP	NF/GNP	A/GNP	L/GNP	NF/GNP	A/GNP	L/GNP
Currency and deposits	7.75	7.75	0.00	0.61	0.65	0.04	-0.20	0.45	0.65
Securities	0.79	1.37	0.58	-2.84	0.13	2.97	-3.11	0.00	3.11
Equities and stocks	1.62	1.62	0.00	-1.59	0.16	1.75	0.35	0.35	0.00
Loans	-3.70	0.05	3.75	-6.82	5.87	12.68	-0.58	0.66	1.24
Insurance and pension funds	0.27	0.27	0.00	-0.02	0.00	0.02	0.02	0.00	-0.02
Other	0.60	0.57	-0.03	0.00	0.32	0.32	-0.01	0.18	0.19
Total	7.34	11.64	4.30	-10.65	7.13	17.79	-3.53	1.64	5.17

Note: The table shows acquisitions of financial assets (A) and liabilities (L) by household business and government sectors as a percentage of GNP
The columns (NF) show net acquisition of financial assets.

Table 12

THAILAND: COMMERCIAL BANKS

in billions of baht	1985 Dec.	1986 Mar.	1986 June	1986 Sep.	1986 Dec.	1987 Mar.	1987 June	1987 Sep.	1987 Dec.	1988 Mar.	1988 June	1988 Sep.	1988 Dec.	1989 Mar.	1989 June
Total	701.9	715.2	727.5	743.7	767.6	804.6	828.8	853.1	920.2	960.7	1009.8	1055.2	1126.1	1184.5	1240.7
Liabilities:															
1. Deposits	549.0	567.0	585.8	596.1	618.9	647.4	672.5	697.5	741.3	767.0	802.5	823.9	882.5	924.9	987.4
2. Borrowing from BOT	26.0	27.0	25.7	29.9	33.4	37.1	38.2	32.3	40.7	47.0	47.4	52.2	56.7	45.3	38.2
3. Foreign liabilities	45.6	39.5	36.8	36.0	31.9	34.7	31.1	28.1	38.2	39.7	46.1	54.2	62.6	72.0	67.5
4. Interbank borrowings	4.8	3.1	1.7	2.2	3.2	2.0	2.1	1.2	1.8	1.6	1.2	4.7	7.3	11.4	12.3
5. Capital Accounts	42.4	42.7	42.2	43.2	44.1	46.3	48.2	52.8	57.5	58.7	66.0	67.7	68.3	73.9	77.1
6. Other liabilities	34.1	35.9	35.3	36.3	36.1	37.1	36.7	41.2	40.7	46.7	46.6	52.5	48.7	57.0	58.2
Assets:															
7. Private credit	527.9	529.6	527.5	531.8	552.8	577.9	598.9	624.8	681.8	716.9	760.7	805.6	864.3	915.6	980.5
8. Gov't Securities	77.0	91.5	96.1	107.3	104.2	112.9	125.7	119.7	114.9	125.9	125.3	125 0	123.2	127.9	123.6
of which R/P net sale (-)	-2.8	0.7	2.1	3.6	-0.4	3.5	10.4	4.4	-0.6	-0.8	-1.4	-3.2	-3.5	-1.8	-4.9
9. Foreign assets	33.8	33.3	36.9	42.3	40.6	42.4	28.8	32.2	38.5	34.2	35.1	39.2	41.7	48.5	49.8
10. Cash and BOT	21.2	19.8	20.5	18.0	22.1	22.5	22.9	24.4	25.7	26.6	26.8	23.3	32.3	32.3	28.8
11. Other assets after	42.0	42.0	46.5	44.3	47.9	48.9	52.5	52.0	59.3	57.1	61.9	62.1	64.6	60.2	58.0

Notes: 1. Deposits (excluding foreign and interbank)
3. As in BOT form EC117
7. Private credit (excluding export bill and interbank)
8. Investment in Government securities, of which repurchase market net sale (-)
9. As in BOT form EC117
10. Cash on hand and balance at BOT
11. After adjustment

Table 13

THAILAND: MAIN INTEREST RATES, 1983-89

	Central Bank (1)	Repo (2)	Interbank (3)	Bank Deposits Ceiling (4)	Bank Deposits Actual (5)	Bank Loans Ceiling (6)	Bank Loans Prime (7)	Govt. Bonds (8)	Inflation CPI (9)
1983 Q1	11.5	9.0	11.2	13.0	11.5	18.0	16.0	11.3	2.3
1983 Q2	11.5	11.3	11.1	13.0	10.5	17.5	16.0	11.1	3.6
1983 Q3	11.5	12.5	12.0	13.0	11.5	17.5	15.5	11.1	4.8
1983 Q4	13.0	14.5	14.3	13.0	12.5	17.5	16.5	11.1	4.1
1984 Q1	13.0	14.5	15.7	13.0	13.0	18.0	17.0	12.1	3.1
1984 Q2	13.0	13.0	13.3	13.0	13.0	19.0	17.0	12.4	1.5
1984 Q3	13.0	13.5	13.0	13.0	13.0	19.0	17.0	12.6	-0.2
1984 Q4	12.0	7.7	12.3	13.0	12.5	19.0	16.5	12.6	-0.8
1985 Q1	12.0	15.1	15.2	13.0	12.5	19.0	16.5	12.5	1.4
1985 Q2	12.0	10.6	14.0	13.0	12.5	19.0	16.5	12.6	2.0
1985 Q3	11.0	10.4	10.9	13.0	11.0	19.0	15.5	12.2	2.9
1985 Q4	11.0	13.1	13.8	13.0	11.0	19.0	15.5	11.1	3.5
1986 Q1	10.0	8.4	11.0	9.5	9.5	15.0	14.0	10.7	2.3
1986 Q2	10.0	6.9	8.1	9.5	9.0	15.0	14.0	9.2	1.8
1986 Q3	8.0	6.2	7.1	9.5	7.3	15.0	12.0	8.5	1.6
1986 Q4	8.0	6.0	6.2	9.5	7.3	15.0	12.0	8.1	1.6
1987 Q1	8.0	5.3	6.0	9.5	7.3	15.0	11.5	7.6	1.8
1987 Q2	8.0	5.2	5.8	9.5	7.3	15.0	11.5	7.3	2.0
1987 Q3	8.0	5.0	5.6	9.5	7.3	15.0	11.5	7.5	2.8
1987 Q4	8.0	5.4	6.2	9.5	7.3	15.0	11.5	7.5	3.2
1988 Q1	8.0	6.7	7.2	9.5	7.3	15.0	11.5	7.5	4.0
1988 Q2	8.0	7.1	7.5	9.5	7.3	15.0	11.5	7.5	4.0
1988 Q3	8.0	8.9	9.0	9.5	8.0	15.0	11.5	7.5	3.7
1988 Q4	8.0	9.2	10.8	9.5	9.5	15.0	12.0	8.1	3.7
1989 Q1	8.0	9.2	10.1	9.5	9.5	15.0	12.0	8.9	5.5

Notes:
(1) Bank of Thailand Basic Loan Rate: First tier
(2) Repurchase rate (one month to 84:3, 3-day since)
(3) Money Market (period average)
(4) Ceiling on Bank Deposit rates (1-2 year)
(6) Ceiling on Bank Lending rates (non-priority)
(7) Prime Lending Rate, most banks
(8) Coupon on Government Bonds (Period Average)
(9) Percentage change in CPI over previous four quarters

Sources: Bank of Thailand, IFS.

Figure 6

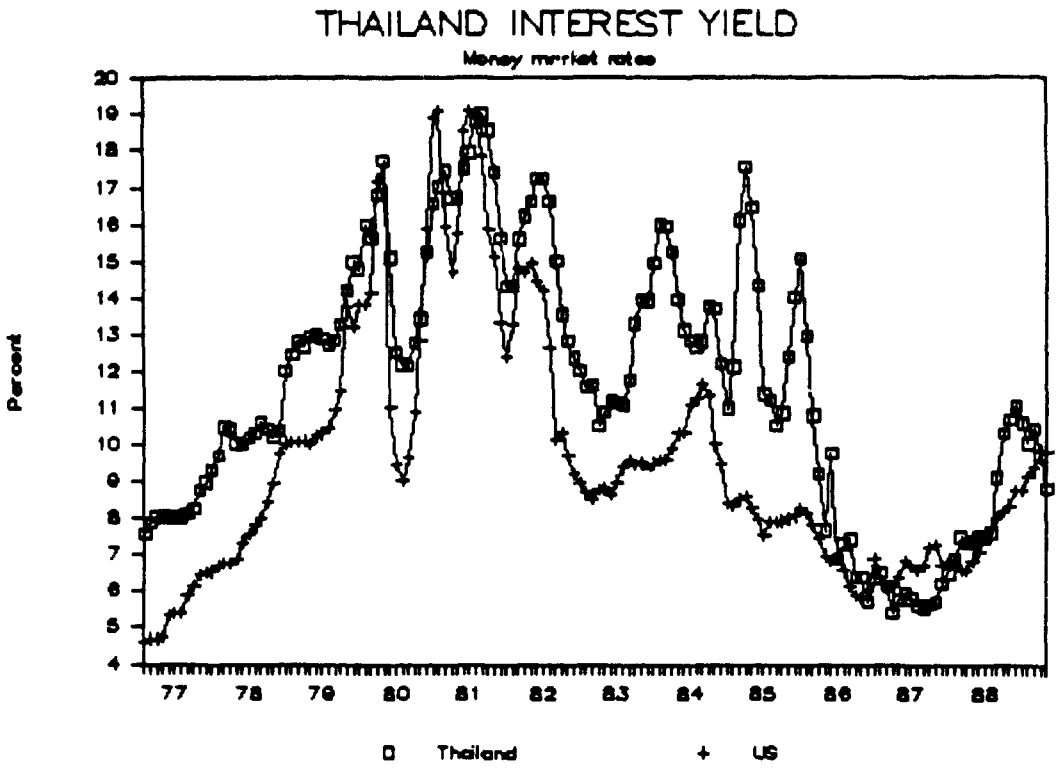


Figure 7

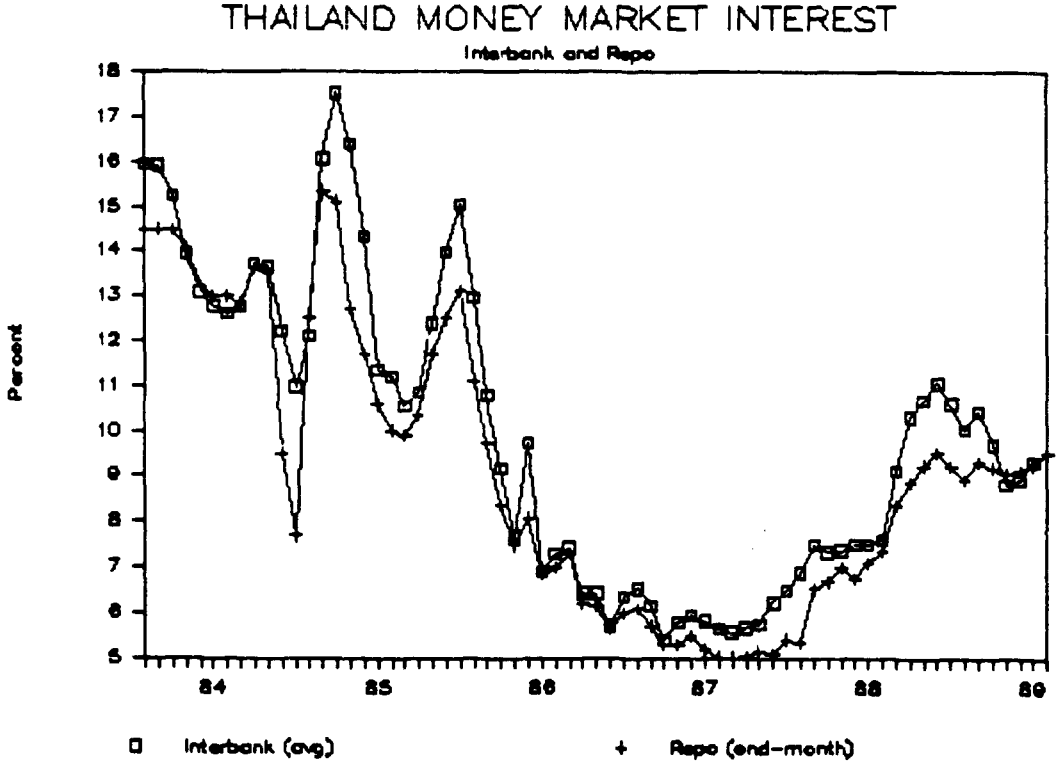


Figure 8

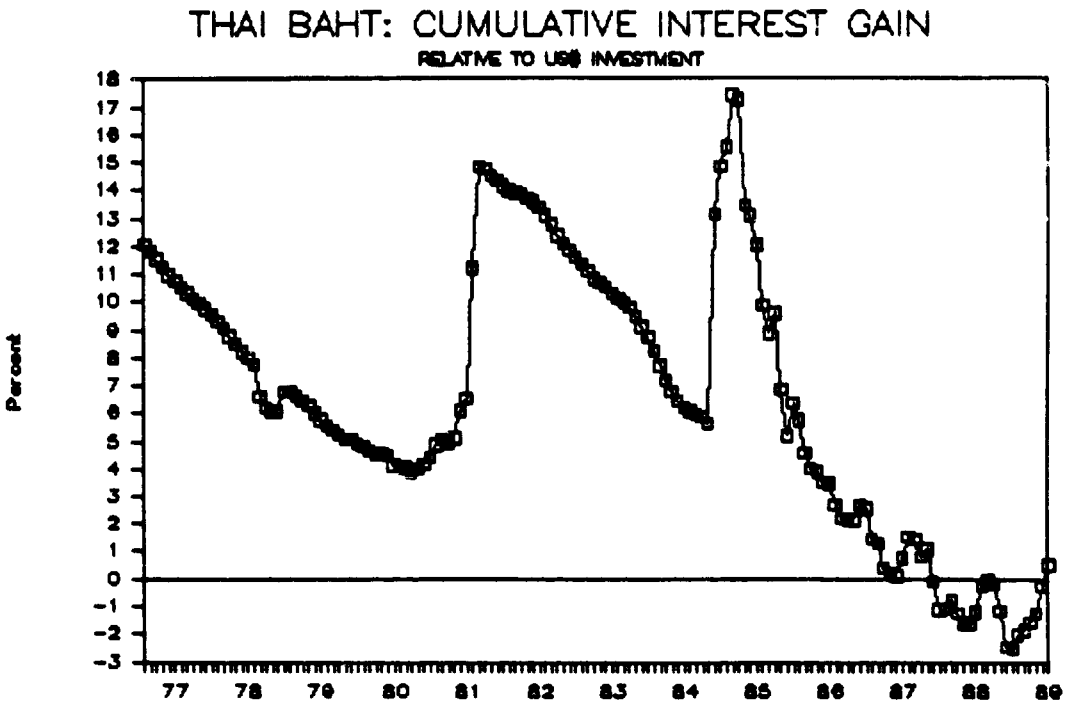


Figure 9

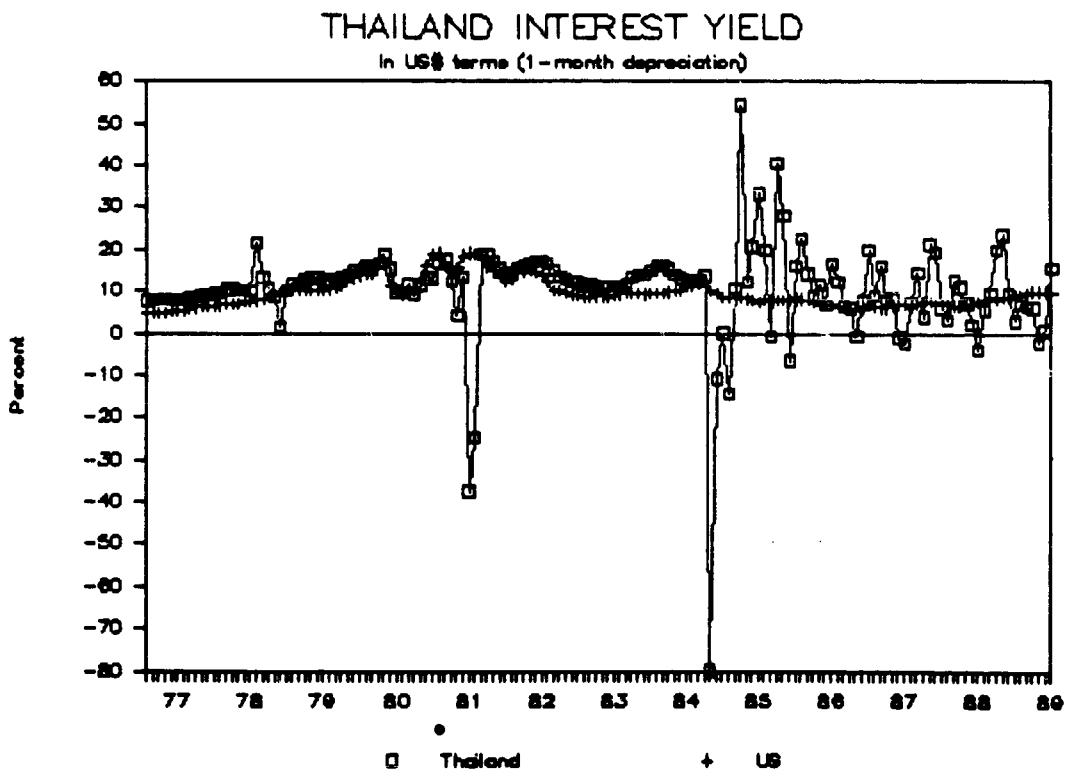


Figure 10

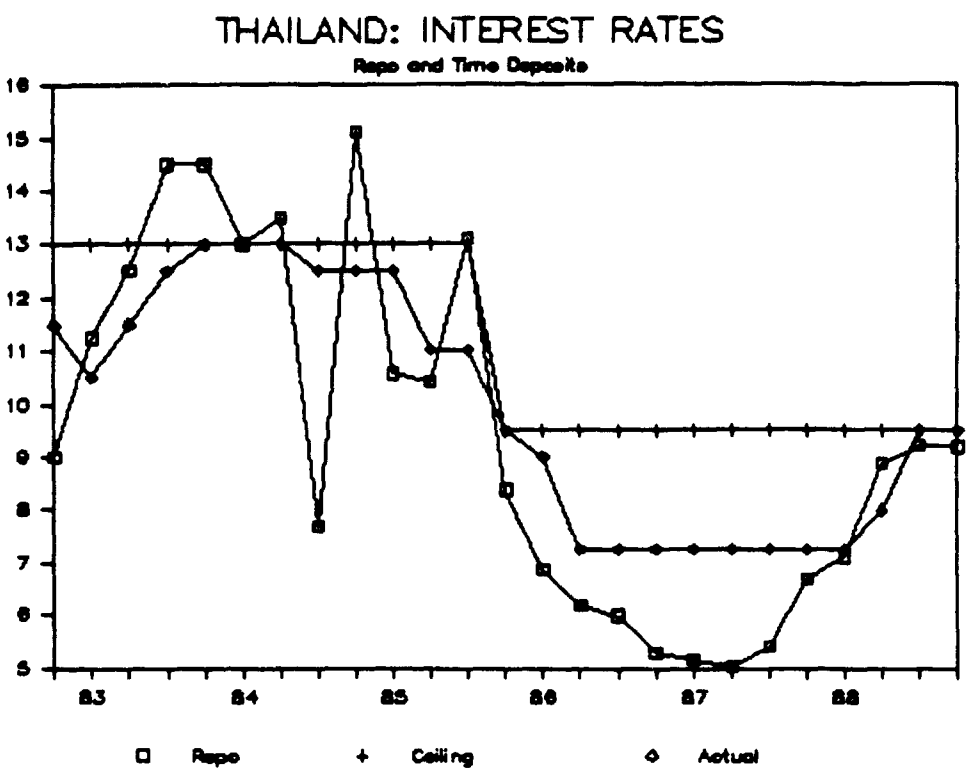


Figure 11

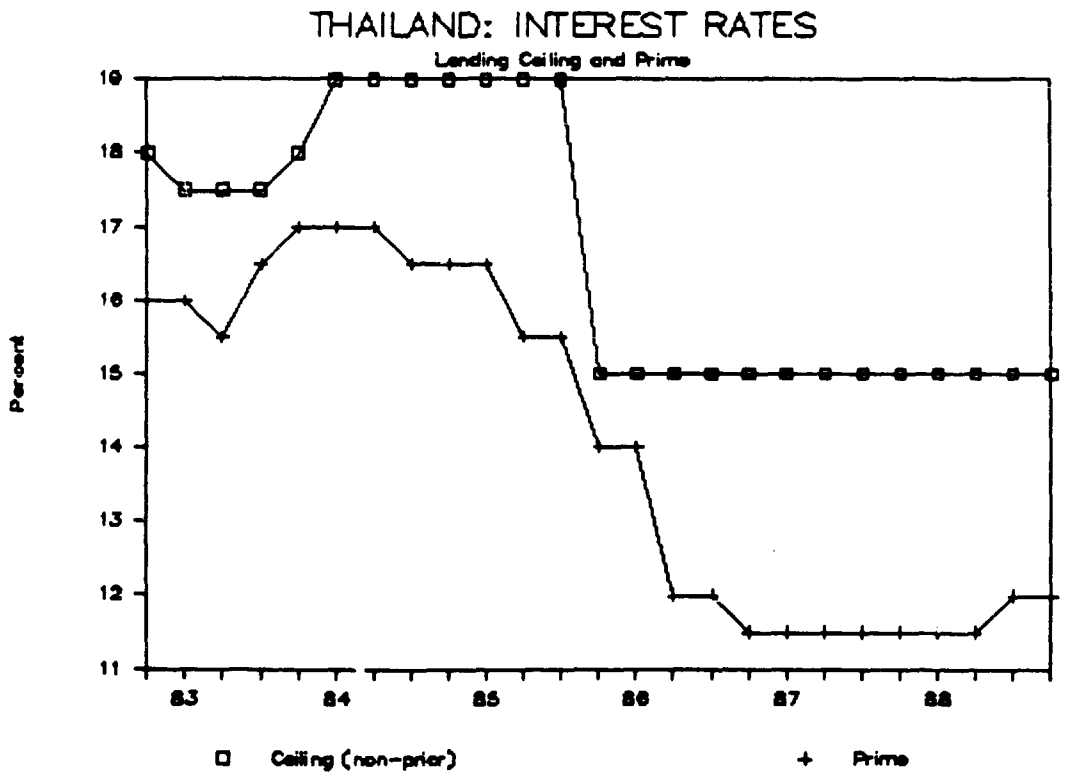
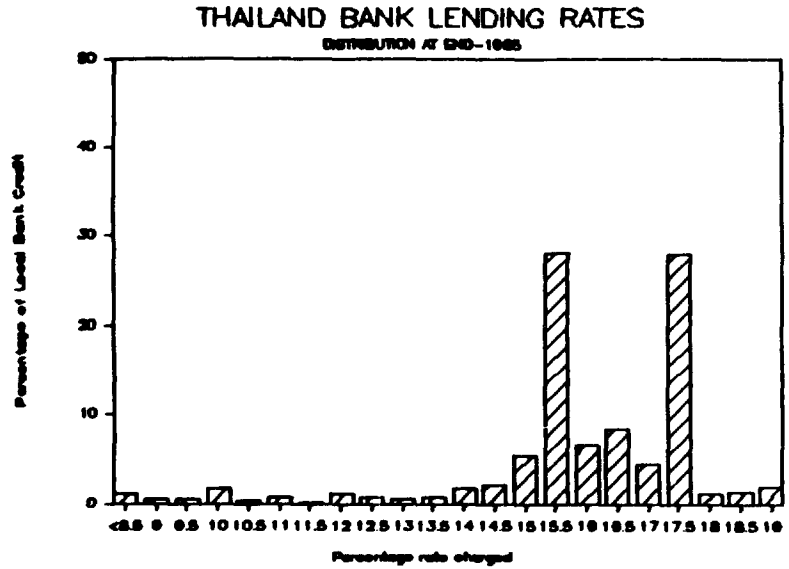
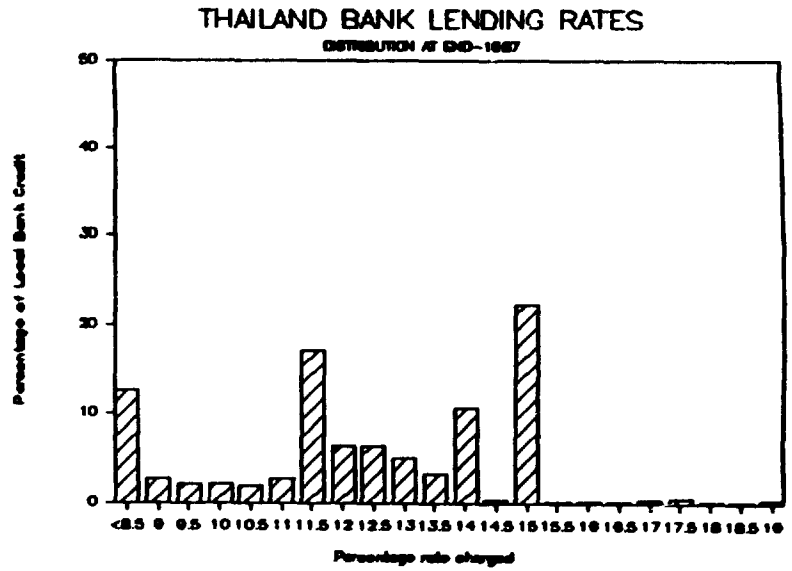
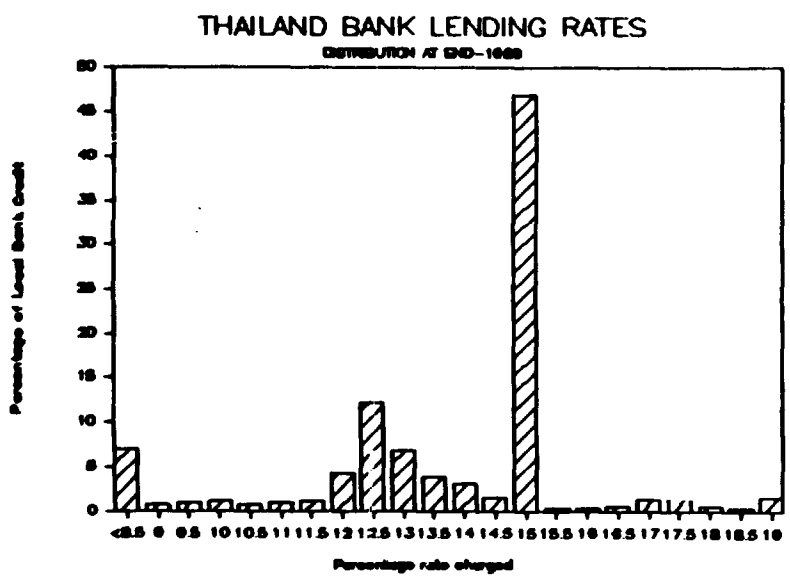
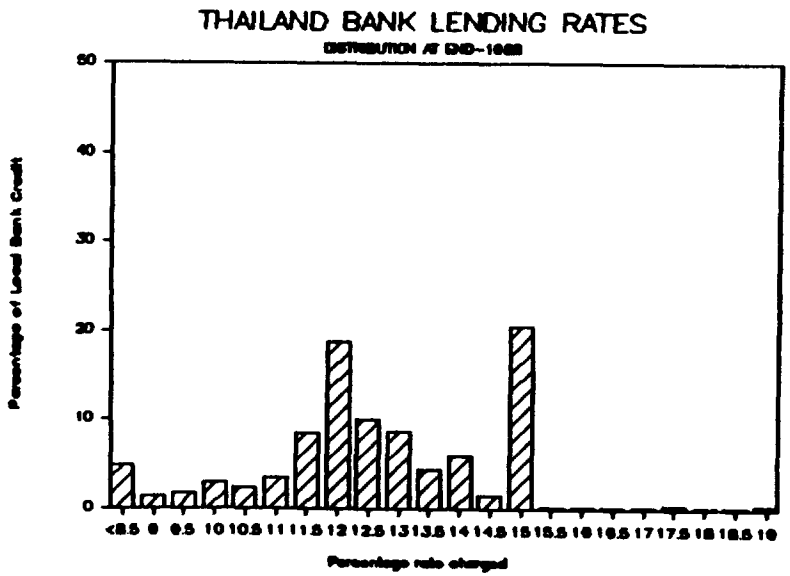


Figure 12


THAILAND BANK LENDING RATES


THAILAND BANK LENDING RATES


THAILAND BANK LENDING RATES


THAILAND BANK LENDING RATES

APPENDIX: STATISTICAL TESTS

APPENDIX 1

THAILAND
Regression Results

Regression Equation: (Billions of baht)
Y = current account deficit (BOP)
X = public sector deficit
Y = .503 X - 1.585

	Coefficient	Std Dev of Coefficient	T-Ratio
Intercept	-1.5849		
X	0.5027	0.2472	2.0335

R SQUARED = 0.2161
ADJ R SQR = 0.1638
DURBIN WATSON STAT = 1.5247

Regression Equation: (Billions of Baht)
Y = change in net foreign assets (BOT)
X = change in net domestic assets (BOT)
Y = 5.93 - 1.04 X

	Coefficient	Std Dev of Coefficient	T-Ratio
Intercept	5.9344		
X	-1.0399	0.0735	-14.1482

R SQUARED = 0.9217
ADJ R SQR = 0.9171
DURBIN WATSON STAT = 1.2418

Determination of Short-term Interest Rates: A Technical Note

This note reviews short-term interest rate developments in Thailand since the devaluation of late 1984. The main variable used is the IFS money market interest rate monthly 1985.01-1989.4. This is plotted with its US$ counterpart in figure T1. The main features of this figure are very large gap which persisted between baht and US$ interest rates throughout 1985; the fact that baht interest rates never fell very far below $ rates (the widest gap was about 150 basic points); the surge in the interest differential in the second half of 1988, when baht rates exceeded 11 percent; and the subsequent decline to below $ rates in early 1989.

Theory suggests that well-financed and risk-neutral speculators will ensure that the market-clearing interest rate for baht securities differs from the US$ rate only by the market's expectation of exchange rate change. A further assumption of rational expectations would imply that actual exchange rate change would differ from the expected only by a serially uncorrelated random error term. Plotting actual exchange rate change against the raw interest differential as in figure T2 suggests at the very least that the raw interest differential has been a very poor predictor of subsequent exchange rate change. This is a common finding in countries with reasonably stable exchange rates, including industrial countries. Looking more closely at the data, using regression analysis, reveals that the raw interest differential has been a biased, as well as an inaccurate predictor of subsequent inflation.

Thus, in a regression of the subsequent month's depreciation (DELE) on the raw interest differential (ID), theory would, on the assumption given, call for an insignificant intercept and a coefficient of plus one on the interest differential. In fact the result of this regressions:

$$DELE = \underset{(0.4)}{-0.695} - \underset{(0.6)}{0.377}\ ID$$

RSQ = 0.01 SER = 11.26 DW = 2.37 Monthly 85.01 - 89.04

Where t-statistics are in parentheses. The estimated coefficient on ID is significantly different from plus one. This bias is also reflected in the existence of an average interest differential in favor of the baht despite the fact that the baht appreciated by a total of 7 per cent over the period. This sort of test is subject to the usual caveats that exchange rate expectations may differ very widely from realizations, thereby weakening the precision of the estimation process, and also that the timing of the interest rate and exchange rate observations may not correspond exactly. Furthermore, the ex post (uncovered) interest differential ("RUNCT") does not display serial correlation, as illustrated by the estimated first-order autoregression:[13]

$$RUNCT = \underset{(0.2)}{-0.322} - \underset{(1.2)}{0.167}\ RUNCT\ (-1)$$

RSQ = 0.03 SER = 10.83 DW = 1.96 Monthly 85.01-89.07 OLS

Nevertheless, the presumption must be that exchange rate expectations are not the sole determinants of interest rate differentials of the baht.

If the baht interest rates are not simply determined by exchange rate expectations relative to major currencies it is important to know what the determinants are. One simple model would suggest that in the long-run, given the historical stability of the baht/$ exchange rate, baht interest rates

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13. Both covered and uncovered differentials RCOVT and RUNCT are based on the three day repurchase rate and take account of the withholding tax.

should have a tendency to converge to US$ rates, but that in the short-run domestic liquidity conditions could be important. This is a subject that deserves examination. A reasonably good fit was obtained for a model which describes such a process by employing the stock of base money as an indicator of domestic liquidity conditions.

Specifically note that the supply of base money is affected by flows which are not directly controlled by portfolio choice decisions. For instance base money is expanded by a current account surplus of the balance of payments and by the government's deficit. If portfolio adjustments take time, it may be that a disequilibrium may emerge in the market for base money with supply either higher or lower than the willingness of wealth managers to hold base money. An exception would be in the short-term borrowing of the banks either from the Bank of Thailand or from correspondence abroad: these can be quickly adjusted. If the demand to hold base money (other than that provided by short-term bank borrowing) has been roughly constant during the 50-month sample period, it would be appropriate to use base money (net of these borrowing - "NETBAS1") as an indicator of excess supply of liquidity in the economy with the expectation that it would tend to cause a lowering of domestic interest rates. This hypothesis was tested by the following regression which models an "error-correction" or cointegration process of baht and $ interest rates, with a short-term influence from the disequilibrium liquidity term NETBAS1:

DELBAHT = 0.490 DEL$ - 0.391 ID (-2) - 0.717 NETBAS1 + 4.714
(1.0) (5.1) (4.5) (4.5)

RSQ = 0.43 SER = 0.956 DW = 2.33 Monthly 85.01-85.04 OLS

DELBAHT = 0.323 DEL$ - 0.476 ID (-2) - 0.965 NETBAS1 + 6.284
(0.7) (5.0) (4.2) (4.3)

RSQ = 0.40 SER = 0.980 DW = 2.36 Monthly 85.01-89.04 2SLS

(DELBAHT is the monthly change in the baht money market rate while DEL$ is the corresponding figure for the $[14]). The equation predicts that about one-half of any change in the $ interest rate will be passed through immediately to baht rates, and that gaps between the two rates will tend to be closed -- with about 90 percent of the gap closed after six months unless there is some new shock. Short-term shocks may come from fluctuations in the net monetary base. An alternative equation, assuming that bank borrowing from the Bank of Thailand are not as readily adjusted, uses the variable NETBAS1, equalling the base less only bank net foreign borrowing:

DELBAHT = 1.039 DEL$ - 0.358 ID (-2) - 0.400 NETBAS1 (-2) + 4.307
(2.1) (4.3) (3.5) (3.6)
RSQ = 0.35 SER = 1.017 DW = 2.07 Monthly 85.01-89.04 OLS

With this formulation the fit deteriorates a little, but the $ rate has a more immediate impact.

These regression results are clearly preliminary and tentative. They do suggest that domestic liquidity conditions can matter for interest rates in the short-run, but further work would be needed to confirm this.

If short-run liquidity conditions influence the baht money market rate, the role of monetary policy interventions by the Bank of Thailand becomes important. Over the past thirty months the Bank appears to have adopted a policy of leaning against the wind, i.e. of providing liquidity to the market whenever domestic interest rates rose. Figure T3 illustrates the

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14. Data from IFS, monthly averages. The instruments used for 2SLS are lagged values of the explanatory variables together with DEL$.

close correlation between Bank of Thailand interventions and the international interest differential.

Covered interest parity: Even if short-term baht interest rates do not fully reflect subsequent exchange rate depreciation, they appear to be efficiently determined in the more limited sense that the international interest differential usually tracks the forward premium: thus there are no unexploited risk-free arbitrage possibilities in the long run. Put another way, the dollar interest rate adjusted for the cost of forward cover is approximately equal to the baht interest rate (figure 3). (The difference is 0.25 on average, which is weakly significant). The autocorrelation properties of the covered interest differential were also examined. For the period 1985-1989, the correlation (.7) has been statistically significant. The estimated autoregression regression was (covered interest differential is "RCOVT"):

$$\underset{}{RCOVT} = \underset{(1.7)}{0.249} + \underset{(8.7)}{0.718}\ RCOVT\ (-1)$$

RSQ = 0.59 SER = 0.837 DW = 1.97 Monthly 85.01-89.07 OLS

Deposit interest rates: Turning to deposit interest rates, even though these are not frequently adjusted, they do display a tendency to converge to international rates.

$$DELDEP = \underset{(1.6)}{0.217}\ DEL\$ - \underset{(4.1)}{0.226}\ ID\ (-1) - \underset{(4.0)}{0.222}\ ID1\ (-1) + \underset{(1.9)}{0.0012}$$

R^2 = 0.48 SER = 0.0038 DW = 2.21 Monthly 85:12-89:05 OLS

Here DELDEP is the change in the 3-month deposit rate, ID is the gap between the deposit rate and the US$ libor rate, ID1 is the gap between the deposit rate and the 3-day repurchase rate. All of these observed at end-month.

The equation for the change in the 3-month deposit rate indicates a modest short-run sensitivity to changes in the US$ rate. In the longer run, the equation estimates a tendency to converge to both the local money market rates (ID1) and the US$ rate (ID). The money market rate is also converging to the US$ rate, so that overall the latter is the long-run determinant of the deposit rate.

Figure T1

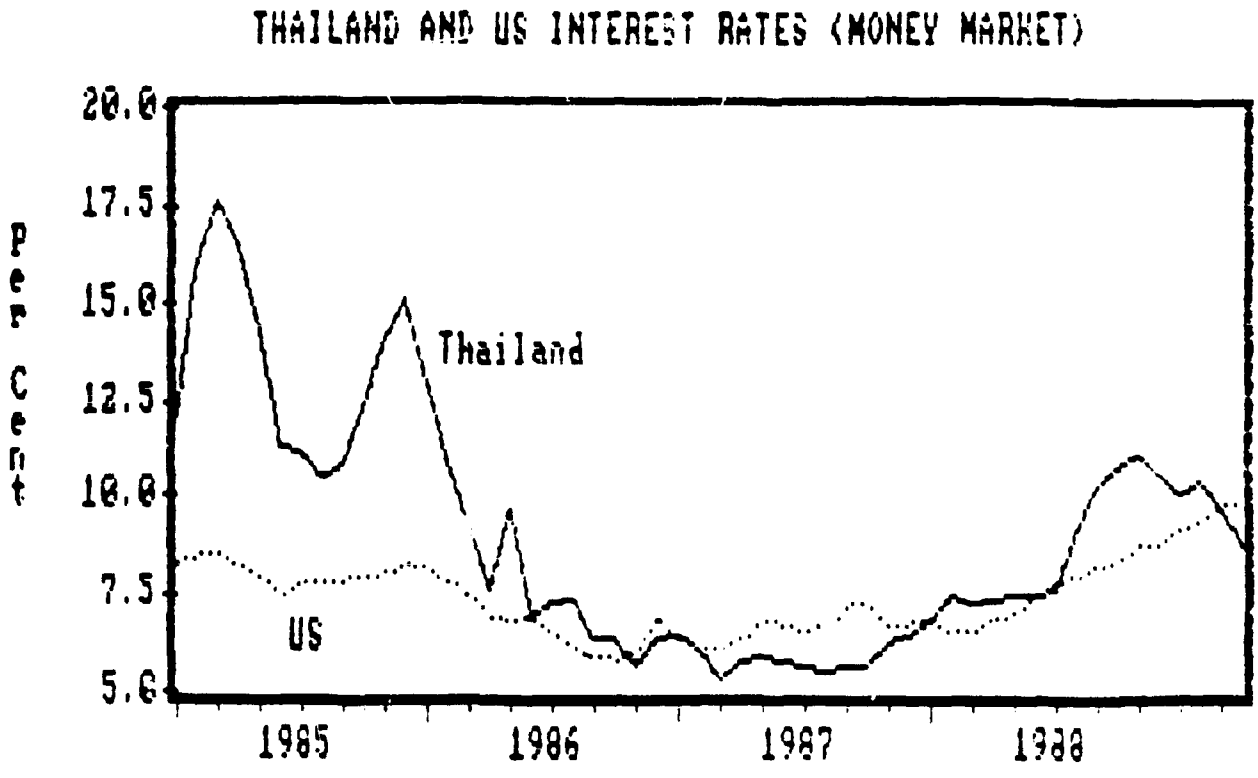
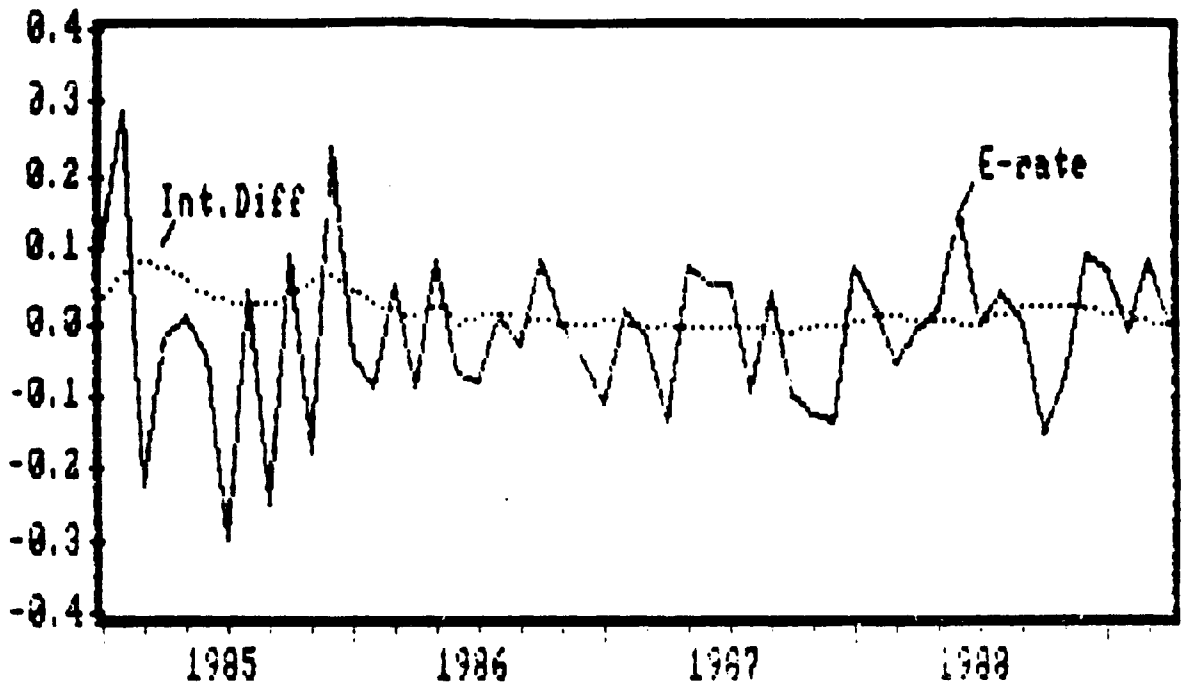

THAILAND AND US INTEREST RATES (MONEY MARKET)
per cent
20.0
17.5
15.0
12.5
10.0
7.5
5.0
Thailand
US
1985
1986
1987
1988

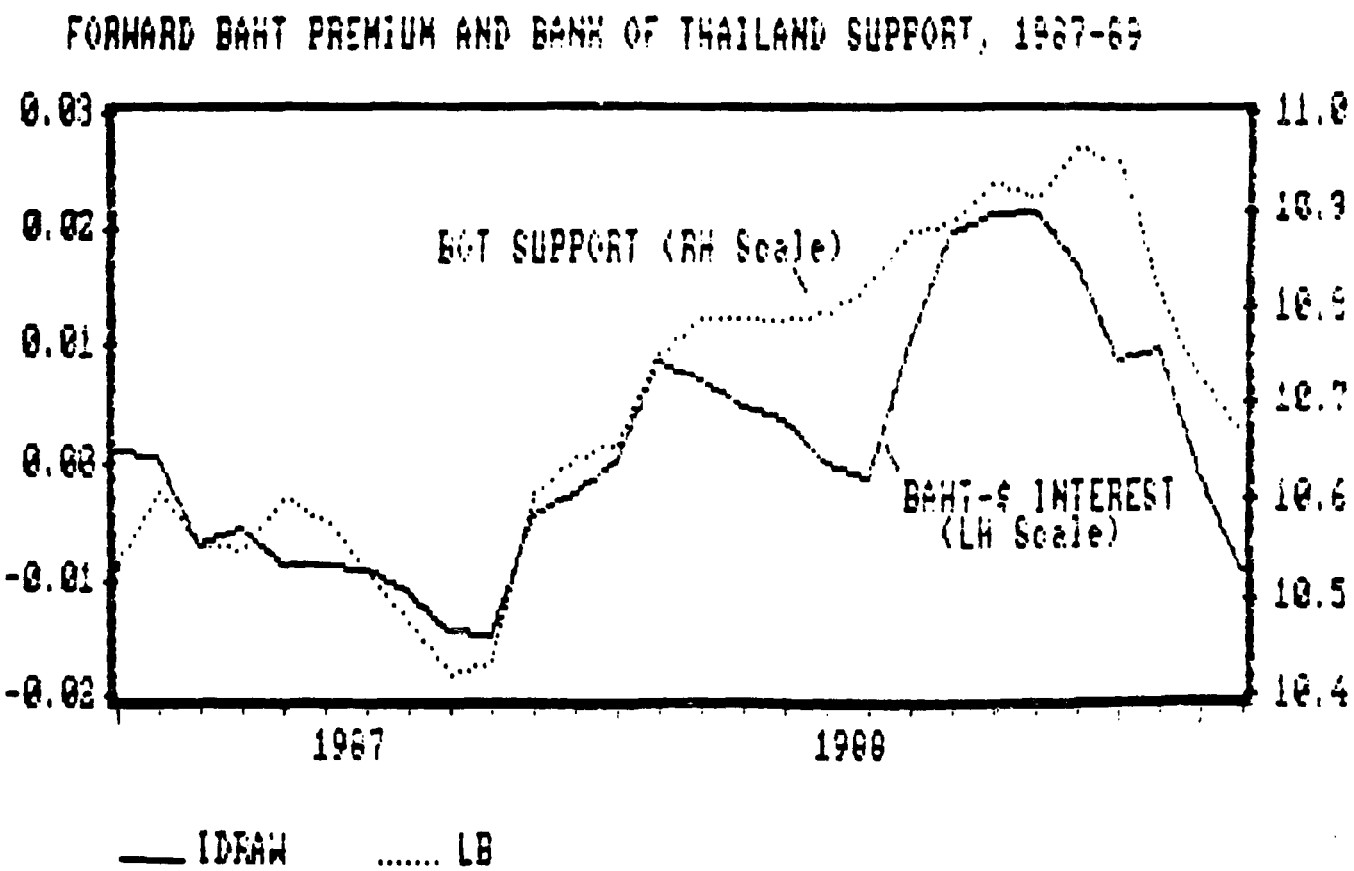
Figure T2

THAILAND: EXCHANGE RATE CHANGE AND UNCOVERED INTEREST DIFFERENTIAL



(Annualised percentage change)

Figure T3


FORWARD BAHT PREMIUM AND BANK OF THAILAND SUPPORT, 1967-69
0.03
0.02
0.01
0.00
-0.01
-0.02
11.0
10.9
10.8
10.7
10.6
10.5
10.4
BOT SUPPORT (RH Scale)
BAHT-$ INTEREST (LH Scale)
1967
1968
IDFAW
LB

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